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Family-Friendly City: Envisioning a "Missing Middle" Density Bonus in Austin's Single-Family Neighborhoods

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Family-Friendly City: Envisioning a "Missing Middle" Density Bonus in Austin's Single-Family Neighborhoods

by

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Dedication

I dedicate this report to families with children, who would like to call Austin home.

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Abstract

Family-Friendly City: Envisioning a "Missing Middle" Density Bonus in Austin's Single-Family Neighborhoods

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The University of Texas at Austin, 2017

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As Austin's population grows, it is increasingly difficult for low and middle-income families with children to find suitable, affordable housing in Austin's central neighborhoods. This is partly because Austin's current zoning is highly restrictive in which lot size minimums and unit maximums keep housing supply low. Families add to Austin's vibrancy, and it is an Imagine Austin goal to enact policies to retain them. I propose one such policy that should be incorporated into CodeNEXT, the rewrite of Austin's land development code: a density bonus in areas tentatively zoned "T3," through which developers could create more units than allowed by right, provided that some are affordable. This bonus would allow for the production of "Missing Middle" housing- more dense than a detached single-family home, but less dense than an apartment in a mid or high-rise. This would create a larger supply of both market-rate, middle-income housing and low-income housing that is designated as such. I justify the need for this through two analyses. 1) I found that two of Austin's most widely used density

incentives, the Vertical Mixed Use and Transit Oriented Development bonuses, have produced and overproportion of affordable studio units, and minimal affordable two-bedroom units, which would be appropriate for families. 2) I analyzed residential demolition and building permits in Brentwood and Crestview to understand the change in the built environment under the current, "SF-3" zoning. This showed that demolitions of old homes rose in the mid 2010's, despite the restrictive zoning. New-builds on nearly half the lots were single-family homes, and the average square feet was 2.2 times larger than the home they replaced. There is, however, great market demand for smaller units that split land cost between one another- allowing them would serve affordable housing needs.

Currently, consultants have proposed a similar density bonus for "T4" and "T5" zoned areas. The bonus should be expanded to "T3" areas, which would include Brentwood, Crestview, North Loop, Zilker, and parts of Bouldin Creek. Allowing such a bonus would be a political compromise: in exchange for more units, developers would be required to provide much-needed family-sized, affordable housing.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

The Austin Bargain

Austin's historic development pattern is similar to other American Sun Belt cities. Its dense downtown, marked by high rises and block-size masses, is starkly different from neighborhoods just a mile away**.** For instance, the Bouldin Creek neighborhood, which is predominantly made up of single-family homes, is just across the Colorado River from downtown. There are a few pockets of historically significant residential areas adjacent to downtown and the University of Texas at Austin campus, (Clarksville, portions of East Austin, Old West Austin, Hyde Park, and pockets of Travis Heights and Bouldin Creek to name a few). However, most residential areas in Austin were developed after World War Two. They were car-oriented, and comprised of primarily ranch-style homes. These areas include Brentwood, Crestview, North Loop, Rosedale, and Allandale which are between four and eight miles north of downtown, and parts of Travis Heights and Bouldin Creek, Zilker, Dawson, and South Lamar, which are one to five miles south of downtown (Figure 1). These neighborhoods are adjacent to one or both MetroRapid bus lines, which makes them accessible to Austin's major job centers—downtown, and UT.

Austin lacks medium-density, or "Missing Middle" housing, which in older American cities defines the spaces between downtowns and lower-density suburban neighborhoods. With limited Missing Middle housing, households such as low and middle-income families with children, who tend to gravitate toward Missing Middle housing types, are underrepresented in Austin's central neighborhoods. American Housing Survey data shows that households with children in the United States tend to occupy units with two or more bedrooms, and in buildings with less than 20 units total, as compared to households without children (Figures 2, 3). Additionally, low-income households are less likely to live in single-family detached housing, as compared to higher-income households (Figure 4). When taken in sum, one can speculate that Missing Middle housing provides an essential service for low, and in some cases middle-income

households with children, when they are priced out of the detached, large-lot, single-family market.

Austin policymakers have emphasized that in order to absorb growth, transit corridors and "activity centers" which are outlined in the *Imagine Austin* comprehensive plan will accommodate more housing units, while Austin's interior residential neighborhoods will not share in that burden. In the 2017 State of the City address, Mayor Steve Adler proposed what he dubbed "The Austin Bargain." He said:

> For starters, let's agree we will not force density in the middle of neighborhoods. There's no sense in shoving density where it would ruin the character of the city we're trying to save in the first place, where it's not wanted by its neighbors, and where we would never get enough of the additional housing supply we need anyway. And in exchange, let's also agree that we will adopt a code rewrite that will give us the housing supply we need by focusing along our major corridors like Lamar, Burnet, and Airport Boulevard and our major activity centers like the area around the Domain, Mueller, and downtown. That will enable the mixed-income housing supply that creates opportunities for more Austinites to stay in Austin, and also to give us the concentration we need to make transit work.[1]

This "agreement" reinforces an urban design problem where nodes and corridors become overwhelmed with commercial activity while being immediately adjacent to single-family neighborhoods, which remain largely untouched. This lack of transition between the urban and suburban can be jarring, and difficult for pedestrians to navigate. Concentrating all multi-family and commercial development in corridors forces residents in single-family areas to travel to neighborhood edges to access key services, instead of accessing them in the interior. This means two things: 1) interior neighborhoods are only walkable in the sense that they might have sidewalks, but fail to support a walkable environment that a slightly denser population would support; and 2) transit corridors will be technically "walkable" in that they will have pedestrian infrastructure. But, they are, by definition, corridors, and their primary purpose is to allow efficient movement of cars and buses. They are congested, noisy, and not ideal for many individuals, especially

[1] Steve Adler, "The Spirit of Austin," (Speech presented at the 2017 State of the City Address at Austin City Hall, Austin Texas, January 28, 2017). Accessed on MayorAdler.com.

families with young children and the elderly, to call home. Not only are these corridors dangerous for young children, the large-scale developments that are often built along the corridors are not suitable for families with children, either. They normally have very limited and difficult-to-access outdoor recreation space because they have very few ground-level units.

Mixed-use developments with ground-floor retail and residential units on upper floors have been *en vogue* in recent years through the city's "Vertical-Mixed Use" density bonus which is applicable along corridors. The term "mixed-use" has become oversimplified in modern planning practice as a strategy to create dense, walkable neighborhoods. In Austin these spaces feel like the result of half-hearted tactics to improve walkability in car-dominated corridors.

The Austin Bargain also presents an equity issue. Corridors are home to a substantial portion of Austin's unsubsidized affordable rental stock. These 1970s-era garden apartments have fallen out of favor in terms of their architecture, but provide a valuable service to low and moderate-income renters who are transit-dependent. Professor Elizabeth Mueller's Green and Inclusive Corridor's Project identified units vulnerable to redevelopment in corridor areas.[2] Allowing corridors, but not interior neighborhoods to densify could increase development pressure on those *de facto* affordable units while protecting wealthier neighborhoods from change.

Austin's population grew roughly 35% from 2000 to 2015, from around 656,000 to 887,000 people.[3] It is certain that there is more change to come. If we accept that change is inevitable, then we will have more influence over what that change will look like, and can use that momentum as leverage to accomplish our goals. If we resist change, then we cannot plan for it—the land use status quo will persist, and there will be a missed opportunity to create the vibrant city that Imagine Austin calls for.

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[2] Elizabeth Mueller, Tom Hilde and Marla Torrado, "Corridor Housing Preservation Index: Austin, Texas," Green and Inclusive Corridors Project, Accessed via http://soa.utexas.edu/libraries-centers/center-sustainable-development/research/housing-lab/research

[3] American Community Survey 5-year Estimates, (2011-2015), 2010 Decennial Census (Social Explorer)

Research Focus: Creating a Missing Middle Density Bonus to Increase the Supply of "Family-Sized" Housing in Austin

Currently, purchasing a single-family home in a centrally located neighborhood is out of reach for low and middle-income families with children. A *Community Impact* analysis showed that from January and June, 2017, only 338 homes sold in Central Austin below $300,000, compared to 1,448 over $300,000, suggesting that affordable home-ownership opportunities for middle-income households continue to be scarce. [4]

Because affordable home ownership options such as single-family homes on small lots or attached townhomes are limited, many families leave Austin for nearby municipalities. I propose that the City of Austin adopt a density bonus policy that allows for the construction of Missing Middle housing types, appropriate for occupancy by families, in centrally located neighborhoods. Missing Middle housing, a term coined by Opticos Design, includes housing types that were predominantly built in the United States during the turn of the century, such as duplexes, fourplexes, eight-plexes, "small" single family homes, townhomes, rowhouses, and carriage houses. They occupy a middle-range "sweet spot" of density: denser than a 1950's-era single-family home, but less dense than a high-rise or mid-rise. They are family-friendly, because they include qualities that one typically associates with the 1950's-era single-family home: access to the outdoors, few stories, and a location along quiet, safe, streets. But with modest square footage and land cost split among multiple units, these homes tend to be more affordable

[4] Marie Albiges, "Millenial Homebuyers Struggle to Afford Austin," *Community Impact,* 9:9 (July 29-Aug 28, 2017).

than their large-lot, single-family counterparts. Allowing Missing Middle housing types creates more housing opportunities for families who cannot afford single-family homes in comparable locations.

A density bonus for Missing Middle housing would require developments to maintain the desired scale and height of the neighborhood, but would allow a developer to produce more units than what would be allowed by the base zoning. This would increase the supply of market-rate Missing Middle housing, while adding to Austin's stock of designated, affordable housing. I will show how "family-friendly" has been defined by social science scholars and other city planning departments, and look to other cities for best practices on how to create more Missing Middle and family-friendly housing. I will show that Austin's existing density bonus programs currently do not create family-sized units. I will use the Brentwood and Crestview neighborhoods as an example throughout most of this Professional Report. While these neighborhoods are "family-friendly" in character, low and middle-income families are priced out. I will analyze residential demolition and building permits in those neighborhoods to understand how many units are replacing demolished homes under the city's current zoning. This will show that about half of demolished homes are replaced by significantly larger single-family homes, a trend which decreases the overall affordability of the neighborhood. The other half are replaced by two units, which is indicates there is unmet demand for Missing Middle housing that is not permitted under the current zoning code. I will also delve into how CodeNEXT might change the zoning in this neighborhood, and hypothesize how a density bonus could play out under the new code.

Chapter 2: Literature Review: Housing Suitable for Children

In order to establish what constitutes "family-friendly" housing, it is important to consider research that investigates the effect of the built environment on children's health. I prioritized studies which controlled for socioeconomic status of participants in this review, while focusing less on cross-sectional studies with results likely impacted by socioeconomic status.

Gary Evans summarized existing research of mental health and the physical environment. Researchers have investigated a variety of environmental characteristics related to housing issues, from neighborhood quality[5], to housing quality,[6]and floor level. There have been many studies on crowding, or what is referred to as "residential density." The studies mostly control for socio-economic status, and they have been consistent. [7] High-rise housing studies have also shown consistent results. Some have employed randomized field studies, in which socioeconomic status is not a factor, while others have been cross-sectional. Floor-level studies have been less consistent, and cross-sectional, making them less reliable. Two factors appear to have the most substantial effect on children's mental health- residential density, (the number of people per room in a housing unit), and number of stories in a building.

Susan Saegert tested both building height and unit population density as potential factors contributing to children's mental health. Controlling for socio-economic status, she compared children living in 3-story buildings and 14-story buildings, as well as children with unit density of less than 1.013 per room, and more than 1.013 per room (1.013 being the median of the group). She asked children's teachers to complete behavior rating forms, she acquired children's reading scores, and she conducted interviews with them. She found that crowding significantly affected children's anxiety, hyper-activeness, and distractability. Higher levels of occupancy and interaction between

[5] Neighborhood quality studies included a bundle of social and physical attributes.
[6] Housing quality studies focused on whether housing units had any structural defects or hazards, if they had poor maintenance, or climatic problems.
[7] Gary Evans, "The Built Environment and Mental Health," *Journal of Urban Health* 80.4 (2003): 542.

household members in overcrowded apartments were associated with more frequent conflicts and low performance levels at school.[8] Building height was slightly less of a factor. Children in 14-story buildings were somewhat more anxious than those in 3-story buildings, but statistically the difference was not significant. Saegert did find, however, that boys had significantly higher levels of hyper-activeness and distractability if they were in 14-story apartments than if they were in 3-story apartments.[9] She also found that children in 14-story buildings had more difficulty comprehending the building's space because they knew a smaller proportion of residents. This lack of "knowability" could lead to perceptions that those children are less friendly, and less capable of feeling guilt. Additionally, children in 14-story buildings, particularly boys, displayed increased manifestation of anxiety due to inability to freely go outside. [10] In sum, while unit density had a greater impact on children's behavior and achievement in school than building height, they both have the potential to affect a child's development in various ways.

Another study, by Evans, Saegert, and Harris, confirms the negative psychological effects of crowding. Children from two sample groups, one from rural households and the other from urban households, were presented with a set of challenging puzzles. The researchers found that children from overcrowded households in both sample groups were less likely to persist in working on a puzzle than children from households that were not overcrowded. This study, which controlled for socioeconomic variation, concluded that children from overcrowded homes were more likely to manifest helplessness and have poorer psychological health, in general, as compared to their counterparts in uncrowded homes. [11] In sum, they found that residential density is positively associated with indicators of psychological distress.[12]

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[8] Susan Saegert, "Environment and children's mental health: Residential density and low income children," In *Handbook of Psychology and Health, 2*, ed A Baum & J Singer (Hillside, NJ, Erlbaum Associates, 1982), 264.
[9]Ibid, 254.
[10] Ibid, 264.
[11] Gary Evans, Susan Saegert, and Rebecca Harris, "Residential Density and Psychological Health among Children in Low-Income Families," *Environment and Behavior* 33.2 (2016): 175.
[12] Ibid., 177.

Building type also influences how much of an impact crowding could have on a child's mental health. Evans, Lercher and Kofler found that children in crowded units that were in multi-family buildings fared worse than children in crowded units in row houses or single-family homes. They recruited 1,280 nine and ten-year-olds in a rural area of Austria, and 80% participated. Their homes were separated into three categories: 1) detached homes, which were mostly single-family homes but included some duplexes. 2) Row houses, which include attached houses of three to eight units. And, 3) Multiple-dwelling family units, larger buildings, with up to 25 units. The tallest building in that category was 10 stories, though most had four or less. [13] Evans and Lercher used two measures to quantify mental health; 1) the combination of two sub-scales, (emotional well-being, and functional impairment) of the KINDL, an index of quality of life for elementary school children in Germany. 2) A survey of 11 "yes/ no" questions on behavioral conduct that the students' teachers completed.[14] They found that children living in multiple-dwelling units were more negatively impacted by high residential-density conditions than those living in either crowded single-family or row houses. [15]

These studies show that it is crucial for housing units geared toward families with children to be large enough to prevent overcrowding. In addition, housing types such as row houses or townhomes should be prioritized, because they lessen the potential negative effects of crowding, and more easily provide adequate access to the outdoors. If the City of Austin plans to create more housing opportunities for low and middle-families with children, policymakers should incentivize the production of units with two or more bedrooms that are either attached single-family homes, such as row houses, or buildings that contain three to eight units.

[13] Gary Evans, Peter Lercher, and Walter Kofler, "Crowding and Children's Mental Health: The Role of House Type," In *Journal of Environmental Psychology,* 22 (2002), 223. (221-231)
[14] Ibid, 224.
[15] Ibid, 226.

Chapter 3: Austin Demographic Analysis

To better understand Austin's city-wide demographic trends, I compare Austin with U.S. cities whose policies are used as best practice examples: Houston, Los Angeles, Seattle, San Francisco, and Charlotte.

Households with Children

The proportion of households with minors in Austin has decreased from 29% in 2010 to 28% in 2015. While the raw number of households with children rose, it is not on par with Austin's population growth over the same period. Compared to 15 other large American cities, including the five high-growth U.S. cities researched for best practices, Austin's percentage of households with children is slightly below average. Austin has a significantly smaller share of households with children than every other city in Texas (Table 9). Furthermore, the census tract level shows that many central neighborhoods which have family-friendly characteristics house a smaller proportion of households with children than the Austin average (Figure 6). Most census tracts in the city limits have less than 30% households with children. While one would expect the central business district to have a small proportion of households with children, North Loop and Travis Heights have very low proportions as well (<10%). Brentwood, North Shoal Creek, Zilker, Barton Hills, and South Lamar are among others that have just between 10 and 20% of households with children (Figures 6, 7). An analysis from the Austin Independent School District shows that this trend will continue. AISD has projected that it will lose a total of 4,266 students over the next 10 years, a 4.8% decrease overall.[16] While there are 13,361 new housing units to be developed within AISD's boundaries, most will be part of multifamily developments, which, according to AISD, do not yield as many students as single-family developments.[17] AISD's north central and central regions, which

[16] Austin Independent School District, "AISD Demographic Study 2016," Jan 12, 2016, https://www.austinisd.org/sites/default/files/dept/default/docs/AISD_Demographic_Study_2016.pdf

[17] The potential impact of Missing Middle housing on the AISD student population is not addressed, though one would expect that Missing Middle housing types yield more students per unit than multi-family apartment complexes do.

encompass the earlier-mentioned central, residential neighborhoods, will lose around 1,100 and 100 students over the next ten years respectively.[18] In contrast, neighboring municipalities are attracting households with children. More than 50% of households in in Leander and Round Rock census tracts, for instance, include children.

Home Value and Income

Nearly all central residential neighborhoods, except North Shoal Creek, have median home values of between $300k and $500k (Figure 8). Meanwhile, homes have a lower median value ($100-300k) in parts of Leander, Round Rock and Pflugerville. While median home value itself is not a very good indicator, as it is self-reported and affected by homestead exemptions, a Brentwood and Crestview Zillow search shows that a buyer would need around $400k to purchase a deferred-maintenance ranch home, while move-in ready homes are priced from $500 to $600k.[19] Median family income is somewhat correlated to home value, and provides a more reliable picture of the socioeconomic circumstances of existing residents (Figure 9). Some patterns from the tract-level analysis are expected, with lower-income residents east of Interstate 35 and higher-income residents west of the MoPac freeway. But many central Austin neighborhoods including Brentwood, Allandale, Rosedale, South Lamar and Travis Heights also have higher incomes, with median family incomes in the $100k to $150k range.

Vacancies and Owner/Renter Dynamics

Higher rental vacancies appear to be correlated with areas with higher median gross rents. While the Austin rental vacancy average was 5% in 2015, Brentwood, which has a gross median rent between $800 and $1100, also has a rental vacancy of less than 2%, a sign that there is not enough rental housing available at those prices (Figures 10,11). Furthermore, there is an oversupply of Class A rentals in Austin, while demand

[18] AISD pg 64,66
[19] Zillow.com

for Class B and C rentals is outpacing supply. The *Austin Business Journal* reported in 2016 that 77% of new multifamily projects were offering concessions to leasers, such as a couple months of free rent, which signifies there are not enough consumers interested or able to rent at those prices.[20] Those seeking units at lower price points, however, are not offered such concessions, and often compete with one another for market-rate, affordable units.

The relatively high sale vacancy in Travis Heights and Crestview is likely due to high turnover due to those neighborhoods' life cycles (Figure 12). Since Crestview was built out in the 1950s and '60s, it is probable that many original owners recently moved into care facilities or have passed. While this contributes to neighborhood change, it also presents an opportunity to produce housing units which might be lacking in the current market. In 2015, owner-occupant households made up 45% of all households (Figure 13).

Housing Unit Characteristics and Growth

From 2010 and 2015, Austin had the highest population growth (16%), and highest housing unit growth (10%) of all six cities (Tables 10,11,12). It is also the only city besides San Francisco with "1-unit-detached" units growing faster than housing units overall, at 11%. While San Francisco's "1-unit detached" stock grew 14% compared to its housing unit growth of 3%, 1-unit detached homes comprise a significantly smaller portion of its housing stock than the other cities, (19% in 2015).[21] "1-unit detached" units are very prevalent in Crestview, part of Brentwood, and Allandale, comprising between 60 and 80% of units (Figure 14). Missing Middle units make up a small proportion (under 15%) in a handful of central neighborhoods such as Crestview and portions of

[20] Jan Bucholz, "Austin Apartments: What's hot, what's cool, and what's in store," *Austin Business Journal,* May 2, 2016.

[21] This rise in San Francisco's single-family stock could be attributed to formalizing informal homes that may have been in use for a significant period before being officially counted. According to CivicDashboards.com, San Francisco has only issued 129 single-family building permits from 2010 to 2013.

Allandale.[22] The proportion of Missing Middle units is under 30% in many other central tracts, which is less than the proportion in Austin as a whole at 30.7% (Figure 15).

[22] It is possible for some 1-unit detached units to be considered Missing Middle if they are on very small lots. However, we know there are very few units like this in these neighborhoods. Most are concentrated in Mueller.

Chapter 4: Best Practices

"Family-friendly housing" Definitions

The definition of "family-friendly housing" varies from place to place, depending on the local context and regional values. However, it is helpful to look toward other cities that have taken steps in defining what "family-friendly" means for them. The cities' policy statements both emphasize housing characteristics that Saegert, Evans, and others found create positive environments for children: access to the outdoors, and suitable square footage and bedroom amounts.

San Francisco

In January 2017, the San Francisco Planning Department published a briefing entitled "Housing for Families with Children." The department analyzed demographic changes and the existing housing stock of the city. It made policy recommendations and established design guidelines that could support a housing market that would better accommodate low and middle-income families. Central to the briefing is an understanding that Missing Middle and family-friendly housing go hand-in-hand, and are in a way, one and the same.

The department includes characteristics of "family-friendly housing stock" through research conducted in other cities and through focus groups. The department recommends that outdoor play areas be visible from adult spaces, in which a parent in their kitchen could look out at their child playing. For podium apartment buildings, today's multi-family norm, only a handful of units would allow this. Because they have double-loaded corridors, more than half of the units would not face shared space. Furthermore, windows are often eliminated from kitchen designs to increase the efficiency of the building. Additionally, only units on the first few floors would allow parents to watch their children in an outdoor space.[23] Therefore, the department recommends that for larger buildings, 2-bedroom and 3-bedroom units should be grouped

[23] San Francisco Planning Department, "Housing for Families with Children," January 17, 2017, 21.

together on lower floors to encourage community-building, and to lessen noise complaints between households with and without children.[24] The department emphasizes that Missing Middle housing would be ideal for families because they are compact, and they incorporate yards in view of interior spaces. They also allow easy pedestrian access to nearby amenities because their density supports more foot traffic, and therefore neighborhood commercial areas. Many Missing Middle housing types also have individual exterior doors, which create a sense of privacy and ownership.[25] The department suggests that new Missing Middle developments would blend well with San Francisco's existing fabric, which includes single-family neighborhoods.[26]

Seattle

In 2011, the Seattle Planning Commission released a white paper to "further illuminate the need for more housing that is suitably sized and affordable for families with children," and to encourage the city to promote policies that address that need. The commission identified characteristics which define "family-sized housing," at multiple scales. Units should contain two or more bedrooms and should include additional features critical for families, such as spaces where family members can gather, and where children can easily access outdoor recreation space.[27] Family-friendly buildings or complexes provide access to outdoor recreation space suitable for children. Neighborhoods should be safe, and include a quality, public school within walking distance, as well as the presence of other families. The most family-friendly locations will include "access to frequent transit, parks, and community facilities, childcare services, libraries, bicycle paths, 'complete streets,' and grocery stores, and other family-oriented retail." [28]

[24] Ibid., 24.
[25] Ibid., 31.
[26] Ibid., 31.
[27] Seattle Planning Commission, "Family-Sized Housing: An Essential Ingredient to Attract and Retain Families with Children in Seattle," January 2014, 10.
[28] Ibid, 10.

The commission also recommended: 1) allowing added flexibility in single-family zoned areas with frequent, reliable transit, 2) allowing a wider range of medium-density housing in single-family areas such as duplexes, triplexes, cottage housing, and courtyard housing, which will expand dwelling options available for families with children while blending in well with single-family areas, and 3) providing a height bonus for buildings with family-friendly units on the ground level.[29]

The city is in the process of implementing a universal density increase, in which all areas will be upzoned by effectively one story, as a part of their "urban village" strategy. According to Katy Haima, a policy analyst on the Seattle Planning Commission, the recommended policies have not moved forward quite yet. The City of Seattle is currently trying to pass legislation to make it easier to build backyard cottages and accessory dwelling units, but proposals to change the makeup of single-family zones are "still a very touchy issue." The Commission is still advocating for incentive programs that create more family-sized units, and will eventually hope to pass legislation that would require one in every eight units in new developments to be a minimum of two bedrooms. Haima hypothesizes that there would be enough public support for such a policy to pass.[30]

"Family-Friendly" Development Requirements

Vancouver

The City of Vancouver likely was the first city in North America to craft policies geared toward producing and protecting family-sized housing in their downtown. In 1978, Vancouver issued a report on specific needs and challenges of housing families in high-density apartments, and crafted design recommendations for those units, including a minimum bedroom-amount requirement. Vancouver updated these recommendations in 1992, adopting the *High-Density Housing for Families with Children* guidelines. In 2012, the city passed the Secured Market Rental Housing policy, which required all new

[29] Ibid, 15.
[30] Katy Haima, phone call to author, April 6, 2017.

developments to designate a minimum of one-fourth of their units as two-bedroom units or larger.[31] In order to increase the supply of three-bedroom units, Vancouver amended that policy in 2016 to require that a minimum of 35% of units in new condominium developments be "family-sized," with 10% of all units having three bedrooms.[32] Vancouver's policy is in tune with its market: in Vancouver, condominium developments carry a higher return than rental developments. They have more access to financing and often outbid rental developments on land. In order to not render rental developments infeasible, this policy only requires new rental developments have 35% family-sized housing, without any 3-bedroom requirement.[33]

Cautionary Tale: Single-Family neighborhood Density Bonus

Charlotte

Charlotte, North Carolina is the largest city in the United States with a dedicated density incentive program for single-family neighborhoods. In 2013, Charlotte's City Council approved the "Mixed-Income Housing Development Program," a voluntary program in which developers can add up to three units per acre above the base zoning density for developments in parts of Charlotte where the median home value exceeds the average home value of the city, $153,000. Developers must make at least 50% of the added units within the reach of buyers earning no more than 80% Median Family Income. In Charlotte, this would be $168,000 for a family of four. Rental properties created through the program would have a 15-year period of affordability, and the city or non-profits would have first right of refusal on for-sale properties.[34] Charlotte lacks Missing Middle housing types, and housing costs have risen, both factors which would support such a density bonus policy.

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[31] Vancouver Housing Initiative, "Family Room: Housing Mix Policy for Rezoning Projects," July 13, 2016, 3.
[32] Ibid, 4.
[33] Ibid, 4.
[34] "Section 9.205: Development Standards for Single-Family Districts," *Amendment to City of Charlotte Zoning Ordinance Approved January 2013,* 3.
*(*http://ww.charmeck.org/Planning/InclusionaryHousing/SingleFamilyDistricts.pdf*)*

Unfortunately, to date, no affordable units have been produced by Charlotte's program. Warren Wooten, the City of Charlotte's housing services operations manager, says the program has lacked traction because it is easier for developers to request a zoning change for increased density than to pursue the incentive.[35] The housing market is hot in Charlotte, and Wooten says that demand has outpaced supply for years. But developers have consistently chosen to pursue zoning changes over the incentive every time. "The intent was to target density bonuses to where the need is," Wooten said. But it ended up being too narrow in regard to where it could be applied, and how density would increase. "The whole idea is to create a carrot to produce a type of unit," Wooten said. But developers have alternative means that are more beneficial to them to increase return on investment. "Rezoning is more palatable," Wooten said. [36]

Low Minimum Lot Sizes to Encourage Missing Middle Housing

Houston

In 1999, Houston reduced minimum lot sizes from 5,000 to 1,400 square feet, within its Inner Loop (i.e., neighborhoods inside of Interstate 610, which forms a loop around central Houston). Under the post-1999 requirements, the building can cover a maximum of 60% of the lot for a maximum density of 27 units/acre. While front setbacks vary depending on the street placement, there are no side or rear setbacks enforced.[37]

Barbara Tennant, an architect at Tennant Design, suggests that it was both Houston's minimum lot size decrease, as well as its "no-fuss," predictable and reliable land development code, that allowed for Missing Middle housing types to be developed. Because Houston's code omits use restrictions, housing can be constructed wherever developers are willing to take the risk. Landowners can add multiple units to existing single-family lots without having to worry about assembling more than one adjacent lot.

[35] The Charlotte density bonus also applies to two multi-family zones, but according to Wooten, there have not been any applications in those zones either.

[36]Warren Wooten, phone call to author, March 3, 2017.

[37]Barbara Tennant, "How Houston Densified: Retooling for High Density Single Family Development," presented at Makeover Montgomery Conference, Montgomery, Maryland, April 14-16, 2011, 3-7, 20.

This means: 1) larger-scale residential developers enjoy a streamlined process in which land acquisition is less risky. They can pursue strategies where they can develop individual, non-contiguous lots. This reduces their overall development cost. 2) Small-scale developers, who could be homeowners looking to earn extra income, can participate in what is often an inaccessible sector of the real estate market.

The 1999 policy has allowed inner residential neighborhoods to gradually densify. For example, 12% of the housing stock in one of the two census tracts that form the city's booming Midtown district (Tract 3125) was "1-unit detached" in 2015. In 1990 it was 36%. 19% of the housing stock in Census Tract 4101, the eastern portion of Montrose, was "1-unit detached" in 2015, compared to 33% in 1990.[38] [39]

In contrast, similarly situated Austin neighborhoods have maintained the same proportion of "1-unit detached" over the same period. Bouldin Creek, (Tract 13.05), was 45% "1-unit detached" in 1990, and 46% in 2015. Census Tract 15.05, which is the northern half of Brentwood, was 65% "1-unit detached" in 1990, and was 63% in 2015. North Loop was 44% "1-unit detached" in 1990. In 2015, the eastern half was 51% "1-unit detached," and the western half was 47% "1-unit detached."[40] [41]

This pattern reflects the change of population and housing units from 1990 to 2015 as well. It is clear the two Houston neighborhoods have grown to accommodate a much larger population in 2015, while the Austin neighborhoods have added a smaller portion of units and people over that same period.[42]

[38] American Community Survey 5-Year Estimates (2011-2015), Social Explorer.
[39] 1990 Census, Social Explorer.
[40] Over this period North Loop was divided into tracts 3.04 and 3.05.
[41] American Community Survey 5-Year Estimates (2011-2015), Social Explorer.
[42] North Loop's population gain over this period, however, could be due to the rise of "stealth dorms", or single-family homes which house many students.

Table 1: Housing Unit and Population Change in Select Houston and Austin Neighborhoods, 1990-2015

Neighborhood	Units (90)	Pop. (90)	Units (15)	Pop. (15)	Units Change	Pop. Change
Midtown	1,041	2,152	1,997	3,752	92%	74%
Montrose	1,887	2,555	2,341	3,912	24%	53%
Bouldin Creek	2,765	5,547	2,922	5,769	6%	4%
Brentwood	2,125	4,185	2,262	4,246	6%	1%
North Loop	3,398	5,517	3,445	6,631	1%	20%

Houston overall added a much higher proportion of Missing Middle units than Austin from 1990 to 2015 (Figure 16). Furthermore, American Housing Survey data suggests these Missing Middle units are "family-friendly." Missing Middle categories are either evenly producing one and two-bedroom units, or producing a larger share of two-bedroom than one-bedroom units. Additionally, there are significantly more three-bedroom units produced than studios (Figure 17).

It is important to consider the difference in scale between Austin and Houston. In 2015, Houston had a total of around 925,000 housing units and a population of 2.2 million, while Austin had around 380,000 housing units and a population of 890,000.[43] Even accounting for this difference, it is clear Houston is outperforming Austin in Missing Middle development. Austin is nearly on par with Houston over that period in construction of "1-unit detached" homes, which, considering their sizes, is rather extraordinary, especially since Houston has barely expanded its boundaries over this period while Austin has. This implies that most of Houston's net single-family growth is from small-lot infill development within the existing fabric. Houston also outperformed Austin in constructing 10-19-unit buildings more than three-fold. Houston also constructed more than four times more units in 5-9 unit buildings and more than three times more in 20-49 unit buildings, than Austin. Houston also lost over 40,000 units in

[43] Ibid.

50+ unit buildings over that period, while Austin added over 7,000, an indication that it is relying on large-scale development as a densification strategy much more than Houston.

Both Houston and Austin have experienced explosive population growth in the last decade. Although their economies differ in that Houston relies on the oil and gas industry, while Austin is an institutional and technology center, one could assume that the population served and housing characteristics demanded are similar within the two cities. Keeping in mind Houston's lax regulatory structure, it is plausible that the changes in Houston's housing supply more adequately reflect market demand than Austin's. This comparison implies that Austin's added housing supply is not matching what housing types are demanded, and that developers are less able to navigate Austin's complex regulatory environment than is the case in Houston.

Additionally, Austin's current land development code incentivizes single-family development over Missing Middle residential building types. Buildings with three or more units are required to undergo commercial development review, similar to the review required for a large multifamily residence or commercial strip mall. Because of this, development cost is unnecessarily high and review is inappropriately rigorous for housing types that are largely compatible with single-family residences. This decreases incentive to develop Missing Middle housing. Austin's regulations systemically favor single-family housing, which, as Austin continues to grow, will "promote exclusivity in Austin's central neighborhoods and exacerbate economic and racial segregation," according to a white paper by Kevin Howard and Nicole Joslin. By regulating Missing Middle housing types at the same standards as single-family residences, most of these barriers would be removed. [44]

[44] Kevin Howard and Nicole Joslin, "Missing Middle Housing in Austin, Texas," Austin Community Design and Development Center & UT Center for Sustainable Development, May 2016, 13.

Small Lot Ordinance

Los Angeles

Before the Small Lot Subdivision Ordinance, developers in Los Angeles could only construct condominiums or apartment homes on lots zoned multi-family. Single-family homes could also be constructed but they required a 5,000 square foot minimum lot. In 2005, the City of Los Angeles passed the Small Lot Subdivision Ordinance which allowed developers to subdivide multi-family lots into multiple fee-simple lots with minimum lot sizes of just 600 square feet. [45] Since the lots are fee-simple, homeowners own 100% of the structure and the land. This avoids any need for a home owner's association. In Los Angeles, strict lending practices and insurance liabilities have made it difficult to finance condominium projects. Condominium HOAs have had to require additional insurance of upwards of $20,000 per unit, due to an increase in construction defect litigation. Since small lot developments avoid these requirements, they are generally much easier to finance. [46]

The ordinance does not increase the base density- rather it is used as an infill tool for underutilized land in existing multi-family or commercial zones. One of the goals of the program is to "provide fee-simple home ownership opportunities for a greater number of people, at a wider range of income levels." [47] By simplifying the subdivision requirements, Los Angeles has diversified its housing supply, and thereby has created housing opportunities for households who were not being served before.

Strategy Overview

While distinct, these strategies contain overlapping goals. Houston and Los Angeles' policies are geared toward densifying the built form, by respectively allowing townhomes to transform single-family areas or fill in voids in multi-family areas. A positive benefit of such design-oriented policies is that more middle-income families are

[45] "Los Angeles, California: Small Lot Ordinance," www.huduser.gov.
[46] Ibid.
[47] Michael LoGrande, "Advisory Agency Policy: Small Lot Ordinance" January 29, 2014, 6.

accommodated, though that is not the primary goal. The Vancouver and Charlotte policies are people-oriented. That is, they require a certain amount of units, either through a site requirement or incentive program, to be a certain unit size, or maintain a certain level of affordability. The Vancouver policy, which is informed by the multiple studies showing the negative effects of crowding on children, likely has a small effect on the built environment and is purely regulatory. It contrasts with many inclusionary housing policies, which require a set-aside of affordable units but typically do not specify what square footage those units should be, or how many bedrooms units should have. This means that many inclusionary policies tend to overserve singles and couples, and underserve families, who cannot comfortably live in studios or one-bedrooms.[48] The Charlotte policy, which is informed by studies which found better outcomes for children in low-rise and smaller-scale housing, would theoretically densify single-family areas if it was used. Charlotte's strategy is unique because it is applicable in single-family areas: it changes the assumptions about where density bonuses should operate. The majority of density bonuses in the U.S. engage with vertical density: that is, if a developer makes "x" amount of units affordable at "x" level, then the developer will get to add "x" amount of stories over their base zoning. The Charlotte policy uses a density bonus in terms of units, allowing three units per acre above the areas base zoning with 50% of the added units being affordable at 80% MFI. If used, this tool would allow existing low-density single-family neighborhoods to better accommodate more Missing Middle housing types.

[48] It would be important to know who is being served by the Vancouver policy. Vancouver's Income Mix Policy does require the set-aside of 20% units in large developments to be affordable, but the two policies do not inform one another. (It is possible that the family-sized units are rented or purchased by wealthy households without children).

Chapter 5: Existing Austin Plans

Imagine Austin

Policymakers engaged in the CodeNEXT process, the rewrite of Austin's land development code, reference *Imagine Austin*, Austin's comprehensive plan, to understand the goals and vision established for Austin's future. *Imagine Austin* recognizes that the city's current housing market is inaccessible to middle-income families, and that encouraging private developers to increase the supply of Missing Middle housing would help address this. This discussion is included in the sixth "Priority Program" in the plan, "Develop and Maintain Household Affordability Throughout Austin." (The priority programs organize the plan's countless goals into implementation strategies).

> Low-income, fixed-income, and, increasingly, middle-class households struggle to find housing they can afford, especially in the urban core. Often, the only housing they can afford is not close to work or schools and is far removed from daily necessities … Better-located housing is often too expensive or does not meet the needs of many families with children. As Austin becomes more diverse—with a growing retired and senior population, an increasing number of smaller households, and others interested in alternatives to suburban living—the single-family homes typical of our central neighborhoods may not suit their needs. More significantly, high real estate prices increasingly preclude the possibility of purchasing or renting a house in Central Austin. To meet the market demand of our growing and diversifying population, the range of available housing choices must expand throughout the city. Alternatives to the typical larger-lot single family and garden-style apartments that characterize much of Austin's housing stock are needed, including a greater variety of starter and move-up homes. The introduction and expansion into the market of housing types such as row houses, courtyard apartments, bungalow courts, small lot single-family, garage apartments, and live/work units can meet this emerging demand. The demand for market-rate housing can and should be met by the private sector…To address these issues, a comprehensive approach is needed to define and provide household affordability for Austinites… It should recognize both market-rate affordability and the need for subsidized housing.[49]

While this discussion offers targeted strategies toward increasing family-sized housing supply, the plan's individual policy recommendations that relate to this issue are

[49] *Imagine Austin,* Comprehensive Plan adopted by Austin City Council June 15, 2012, 201.

either contradictory, or fall short in effecting change (Table 13). Most of these policies are in-line with the sixth Priority Program. They recognize the need to diversify the housing stock, and encourage compact, walkable developments in the urban core and near transit, which together help support family-friendly communities. However, "Land Use & Transportation Policy 10" states that new housing should be added to activity centers and activity corridors. Identified in the Growth Concept Map, "Activity Corridors" are busy transit corridors such as Congress, Burnet, Lamar, Airport, and Slaughter. "Activity Centers," which are made up of "regional," "town," and "neighborhood centers," and include downtown, identified TOD areas, and large-scale redevelopment areas such as Mueller, and The Domain.[50]

Relying solely on transit corridors would maintain the status quo: most Missing Middle housing types would not be appropriate for transit corridors, which are characterized by large lots, commercial land uses, and heavy traffic. Not to mention they also happen to be where most of Austin's vulnerable market-rate affordable housing is located. TOD areas and large-scale redevelopment areas are suitable spaces for Missing Middle development, but they comprise a small portion of Austin's developable land. "Housing & Neighborhoods Policy 11" is in accordance with LUT P10, in that "neighborhood character" is prioritized, and by following it, change would be directed away from residential neighborhoods "with character."

To make matters more complicated, 48 neighborhood plans completed in the early 2000s are included as an appendix to *Imagine Austin*.[51] The Brentwood/ Highland Combined Neighborhood Plan's land use goals include 1) "preserve and enhance the single-family residential areas and housing opportunities for persons with disabilities," and 2) "focus higher-density uses and mixed-use development on major corridors, and enhance the corridors by adding incentives for creative, aesthetically pleasing, pedestrian-friendly redevelopment." [52] The two top priorities for Brentwood are: 1) established

[50] Ibid, 103.
[51] Ibid, A61.
[52] Brentwood/Highland Combined Neighborhood Plan, Adopted by Austin City Council May 13, 2004., 6.

single-family areas should retain SF-3 zoning, and 2) focus higher intensity uses on Burnet Rd. and Lamar Road. [5354]

The land use goals for the Crestview/Wooten combined plan include "maintain and enhance the single-family residential areas as well as existing community facilities and institutions in the Crestview and Wooten neighborhoods," and "any new development or redevelopment should respect and complement the single-family character of the neighborhood."[55] The third top "action item" is "existing single-family residential areas should retain single-family zoning" and the eighth is "discourage commercial uses from 'creeping' away from the commercial corridors." [56]

Austin Strategic Housing Blueprint

The Austin Strategic Housing Blueprint, which the Neighborhood, Housing and Community Development department finalized in April 2017, provides a vision for Austin's housing ecosystem. The department intends that by 2027, 25% of affordable units that are created or preserved will have two or more bedrooms, and will be paired with systems to provide opportunities to families with children.[57] The NHCD proposes implementing a consistent density bonus program for centers and corridors identified in *Imagine Austin* by streamlining the ten density bonus programs that currently are distinct from one another.[58]

Furthermore, the department also proposes a "Missing Middle Density Bonus" on collector streets or at the edges of center and corridors, where building heights should

[53] Ibid, 8.
[54] An audit conducted in November 2016 found that Austin's neighborhood planning process is inequitable in the sense that it gives a greater voice on future land use decisions to areas that fall within neighborhood planning areas, and that renters were largely underrepresented in neighborhood planning decisions, which could violate Fair Housing law. (http://www.austintexas.gov/sites/default/files/files/Auditor/au15117.pdf)
[55] "Crestview/Wooten Combined Neighborhood Plan," Adopted by Austin City Council April 1, 2004, 6.
[56] Ibid, 8.
[57] "Austin Strategic Housing Blueprint," City of Austin Neighborhood Housing and Community Development Department, April 24 2017, 17.
[58] Ibid, 29.

conform to residential character. The bonus would allow a developer to fit a certain amount of units more than what allowed through base entitlements onto one lot, while conforming to the height and bulk requirements of the base zoning. Relaxing parking requirements could potentially make units more affordable. [59]

The NHCD suggests that both tactics should further incentivize the production of units with two or more bedrooms.[60] Additionally, both would produce housing units targeted toward households with incomes in the 30 to 80% MFI range. [61]

The NHCD also proposes changing the land development code through the CodeNEXT process to allow smaller houses to be built on smaller lots to produce homes that are more affordable than those on large lots. This strategy would be particularly beneficial in creating more home-ownership opportunities for those with income levels in the 81-120% MFI range.[62] If such a policy were paired with prescriptive design requirements, these homes would better blend with existing neighborhood character.[63]

[59] Ibid, 32.
[60] Ibid, 29, 32.
[61] Ibid, 16.
[62] Ibid, 16.
[63] Ibid, 32.

Chapter 6: Austin's Density Bonus Policies

Overview of Existing Density Bonus Programs

Austin currently has 10 density bonus policies that differ in location and requirements. As of June 2016, 96 developments had participated in a density bonus program, which in sum added a total of 1,653 units to Austin's housing stock. These units were geared toward households earning less than 80% MFI.[64] Because mandatory inclusionary zoning is legally questionable in Texas, density bonuses are the City of Austin's most useful tool toward increasing the supply of affordable housing.[65] Density bonuses have proven to be integral in creating affordable units. They are regarded as one of the most efficient ways of leveraging the private market while not using government subsidy. To illustrate this, in the strategic housing blueprint, the NHCD estimated that if those same units were produced through a bond, they would have cost taxpayers $62.8 million together, or $38,000 per unit in subsidy. [66]

Unit Counts by Bedroom Amounts for VMU and TOD Developments

Current density bonus programs are applicable in a total of 12 square miles, or 4% of the city's area, and are generally concentrated in the densest and busiest areas: downtown, West Campus, transit corridors, and designated transit-oriented development areas[67] (Figure 18). While these areas are not well-suited to accommodate families due to their locations alone, they are an important first step in laying the groundwork to eventually create "family-friendly" units through density bonus programs. As noted in the Seattle and San Francisco discussions on defining "family-friendly," there are numerous

[64] Ibid, 31.
[65] As UT Law Professor Heather Way points out in her blog Which Way, the state of Texas's inclusionary zoning ban is only applicable to for-sale properties; municipalities may not require a maximum sales price. It was not intended to prohibit inclusionary zoning for rental properties, though such a policy suggestion in Austin might be politically unfeasible. (http://whichwayaustin.blogspot.com/2015/05/the-myth-about-inclusionary-zoning-ban.html)
[66] Ibid, 31.
[67] "CodeTalk on Affordability," ECONorthwest, May 8, 2017, ATXN.

qualities from the unit to the neighborhood scale that should be considered when qualifying a unit as "family-friendly," and those characteristics should be understood holistically. However, due to the limited scope of this project, I chose to focus solely on the number of bedrooms in units produced through density bonuses. It is generally understood that a "family-sized" unit should have at least two bedrooms. The NHCD does not track this information. Therefore I relied solely on cold-calling both the development and property management companies associated with each property, using the City of Austin's Affordable Housing Inventory database. The University Neighborhood Overlay bonus, applicable in the West Campus neighborhood, accounts for the plurality of affordable units created (Figure 19). However, these units are targeted toward students and affordable bedrooms are often rented out individually within larger units. That, along with West Campus being a very popular undergraduate neighborhood, made it both difficult to analyze and problematic to consider it "family-friendly" to begin with.

For those reasons, I prioritized developments that used the VMU and TOD bonuses. I eliminated 52 projects that used the UNO bonus, two projects with expired affordability periods, and six projects that had only submitted their application, and had not yet established their property's unit breakdown. This left a total of 40 properties. I contacted professionals associated with 30 properties, with some companies representing multiple properties. I received the unit breakdown information for both the market-rate and affordable units for 13 properties. This includes the types of units (by bedroom count) for both the market-rate units and the affordable units of each property. These 13 properties together have 322 affordable units between them, which represents roughly one-fifth of total built and anticipated density bonus units (Tables 14,15). For the properties that used the TOD bonus, 148, out of 203 total units, are represented. And, for the VMU bonus, 174 out of 531 total units are represented. Market-rate bedroom amounts and affordable bedroom amounts were calculated as proportions of the total market-rate and affordable units from each bonus, respectively, instead of as a portion of all units.

Table 2: VMU and TOD Density Bonus Overview

Bonus	Fee-In-Lieu Option	Unit Set-Aside	Properties Surveyed	Market-Rate Units	Affordable Units	% Affordable Units from Bonus Represented
TOD	Council can approve	10-15% Total Sq Ft	5	807	148	73%
VMU	None	10% Total Units	8	1554	174	33%

Table 3: Market-Rate Unit Breakdown by Bedroom Amounts

Bonus	Studios/ Units	1 BR/ Units	2 BR/ Units	3BR/ Units
TOD	23%	50%	27%	0%
VMU	4%	67%	29%	1%

Table 4: Affordable Unit Breakdown by Bedroom Amounts

Bonus	Studios/ Units	1 BR/ Units	2 BR/ Units	3 BR/ Units
TOD	52%	41%	7%	0%
VMU	50%	50%	0%	0%

**Note: For a list of projects that used density bonus programs, see Table 16.*

An equitable density bonus should produce a range of affordable unit types that resembles the breakdown of the market-rate unit types at the property. If a bonus only produces affordable studios while market-rate units are a range of sizes, that means that we as policymakers are effectively viewing housing choice as a privilege, not a value to be shared among all levels of income-earners. The density bonus revamp under CodeNEXT currently prioritizes proportionate bedroom counts between market-rate and affordable units. This will be a step in the right direction toward ensuring affordable

family-sized units are created.[68] Overall, the affordable unit breakdown of the TOD district is more comparable to its market-rate unit breakdown than for the VMU district. This is likely because the TOD's set-aside requirement is based on square footage, rather than unit amount. Unit amount set-asides incentivize studios over larger units. (If a studio and a 2-bedroom count the same under a set-aside requirement, then of course producing affordable studios will create a higher return.) In contrast, square footage requirements likely do not incentivize any unit size. (Two 500-square foot studios count the same as one, 1000 sq ft 2-bedroom unit). While the TOD bonus produced two-bedroom units and the VMU bonus did not, the TOD bonus still underproduced affordable two-bedroom units compared to its market-rate two-bedroom amount. In fact, all TOD two-bedroom units are in just one property, Eastside Station on East Fourth Street. While roughly half of affordable units for both the VMU and TOD bonus are studios, that fact bears worse for the VMU bonus where studios are barely represented in its market-rate units, while market-rate studios have more of a place in buildings that used the TOD bonus. (The TOD studio data is also impacted by the Studio East development, which is 100% studios, hence the name).

The unit breakdowns of the affordable and market-rate units are nearly identical in three of the five TOD projects represented. Seville is 100% 1-bedrooms, and Studio East is 100% studios, so those affordable and market-rate bedroom ratios are likely less intentional. Eastside Station stands out as having the same distribution of affordable units as it does of market-rate units, with studios, one-bedrooms, and two-bedrooms.

There are five VMU properties where the affordable units are all studios, (or all studios except for one unit), while there are either zero or very few market-rate studios. Two are condominium properties with around 20 units, and one is a rental property with 40 units. The other two are Lamar Union and Bell South Lamar which have 800 total units, and represent over half the total units of all eight properties. [Chris Zaiontz, the co-

[68] "CodeNEXT Density Bonus Policy Overview," 3E-1 pg 2. http://www.austintexas.gov/sites/default/files/files/Planning/CodeNEXT/170615-CodeNEXTDensityBonusPolicyOverview.pdf

founder for 24th Street Realty, developed the two condo properties, 1615 East Seventh Street and 3110 South Congress Street. In a phone interview, he explained that it is often not feasible to incorporate an affordable two-bedroom into their unit mix. The maximum sale price would rise with a larger unit, reflecting the rise in income from a larger household. But the difference in maximum sale price between an affordable studio and an affordable two-bedroom is not enough to justify its construction: in fact, doing so might make them operate at a loss for those units. (Studios sell for $150,000 each, while a three-bedroom, 2-bathroom might sell for $210,000. Selling three studios for $450,000 is undeniably a profit-maximizing choice for the developer). "I know the market demand would be there [for larger affordable units] and we'd love to help a couple, or families. The problem is when we get squeezed on what we can actually sell it for, at some point we are building a property at a loss on those units … it moves the numbers backwards in terms of profitability… The percentage of the total building rather than the number of units … is a fairer way to do the project," Zaiontz said]. [69]

[69] Chris Zaiontz, phone-call to author, April 12 2017.

Chapter 7: Brentwood and Crestview

Sentiments on Neighborhood Change

There is a growing sense within Austin's neighborhood associations, among whose membership homeowners are largely overrepresented and tenants underrepresented, that increased density through CodeNEXT in interior residential areas should not be accepted, because it would bring forth rapid change. However, change in the built environment is a sure thing when land value is rising in a growing region like Austin. Market realities, rather than zoning codes, are the true driver of that change- zoning codes are simply a tool at our disposal to decide how that change should occur. An article from the *Austin American-Statesman* entitled "2 Old Neighborhoods Fearful of CodeNext," which focuses on Travis Heights and Bouldin Creek, illustrates this point well. Gretchen Otto, the president of the South River City Citizens Neighborhood Association, which includes Travis Heights, said "I'm concerned about the effect [CodeNEXT] would have on our neighborhood's character and our existing historic housing…I'm concerned that developers are going to come in hot." Author Nolan Hicks suggests that even though CodeNEXT's tentative zoning for the neighborhoods will not allow high rises or other dramatic changes, "in more subtle ways, CodeNext's changes could dramatically alter the character of these neighborhoods by allowing construction of smaller multi-family complexes and denser development overall." This article references the sheer amount of demolition permits in these neighborhoods which implicitly have led to large single-family new-builds. This conflates two issues in one, citing the destruction of potentially historic homes with new-builds of the same population density as a reason to resist a code that could allow those lots to be developed in a way to accommodate higher population densities. "The numbers confirm the story of rapid change, an American-Statesman analysis found. City officials issued 660 demolition permits for residential properties in south Central Austin neighborhoods — including Bouldin and Travis Heights — from 2012 through 2016, including 161 in 2015 alone…That's nearly double the 355 issued over the preceding five-year period, from 2007 through 2011,"

Hicks writes.[70] Hicks implies that CodeNEXT would cause more residential demolitions by citing demolition data associated with the existing zoning code, and that by maintaining the same code, the rate of demolitions would slow. There is not much logic to it. If change in Austin is inevitable, shouldn't we have the ability to guide that change in a way that accomplishes our affordable housing and urban design goals, as outlined in Imagine Austin?

I intend to analyze demolition and building permits in Brentwood and Crestview, to better understand the nature of change in the built environment on residential blocks, and how Austin's current land development code has impacted the characteristics of new housing stock. This analysis could be used to inform Austin policymakers on how to guide inevitable neighborhood change toward equitable and inclusive results.

My methodology is similar, albeit at a smaller scale, to an analysis conducted by Christopher Neely at *Community Impact* in February 2017.[71] Neely compared the amount of demolitions in central Austin's zip codes from 1980 to 2009 and 2010 to 2017. He also calculated how much larger new-builds from 2010 to 2017 were than the homes they demolished. However, it is unclear if he accounts for the amount of units in the new-builds. For instance, in the 78705 zip code, which includes West Campus, new-builds are "19.4 times larger than the homes it replaced." [72] Of course, with the UNO bonus, West Campus has added numerous high-rises, which could skew that number upward. My analysis provides a more detailed understanding of the housing units being created.

Existing Context

Physical characteristics

Although Brentwood and Crestview are two neighborhoods, they maintain a similar character, and are easily accessible between the two. Crestview is just north of

[70] Nolan Hicks, "2 Old Neighborhoods Fearful of CodeNEXT," *Austin American-Statesman.* April 25, 2017.
[71] Christopher Neely, "7 years' worth of Central Austin home demolitions on track to exceed numbers for the previous 30," *Community Impact,* February 27, 2017.
[72] "Demolition in Central Austin," https://c4c5h4b3jv11qq3kf399hf3c-wpengine.netdna-ssl.com/wp-content/uploads/2017/02/demo-jump.pdf.

Brentwood, with Justin Lane, a residential two-lane road, dividing them. Lamar and Burnet roads, seven and five lane corridors, border the two neighborhoods toward the east and west, creating solidified boundaries that are difficult to cross (Figure 20). In contrast, Justin Lane is not a boundary in the slightest.[73] In addition, the neighborhoods largely serve a similar demographic, with the exception of the southern-most portion of Brentwood (Census Tract 2.05), which has a higher proportion of 1970s-era apartments than the rest of Brentwood or Crestview. It is appropriate to consider them together in this analysis.

Brentwood and Crestview are about five miles north of downtown Austin (Figure 21). The distance from the southern boundary of Brentwood to the northern boundary of Crestview is three miles. The area's width reaches one mile at Crestview, and shrinks in Brentwood as Burnet and Lamar become closer. Land along Burnet is nearly all commercially zoned, primarily occupied by low-density retail spaces ranging from small-scale bars and restaurants to large-scale strip malls with parking in front (Figure 22). A few sites have been developed as multi-family developments with minimal setbacks to the street. Lamar also is dominated by car-oriented commercial spaces, though the Midtown Commons development, which sits adjacent to the Crestview TOD stop, boasts mixed-use, large-scale multi-family apartments, townhomes, and small-lot single-family homes. Koenig Lane, which cuts Brentwood in half, is the only street in the interior of the neighborhoods that has other land uses besides residences: it has a mix of low-density office space, neighborhood corner stores, gas stations, and a smattering of coffee shops and food establishments, with ranch homes in between. Additionally, there is a restaurant, auto repair shop, and small market at the confluence of Woodrow Ave, St. Johns Ave, and Arroyo Seco in Crestview. Besides that, Brentwood and Crestview's interior streets are residential (Figure 23). Brentwood and Crestview were subdivided after World War II, and were populated with ranch homes, often less than 1,000 sq ft, that were typical of car-oriented suburbs that were being constructed across the nation.

[73] In fact, Justin Lane will be undergoing a road diet, and will have protected two-way bike lanes added to it, making it even less of a barrier.

Education

Children in Crestview and most of Brentwood attend McCallum High School, which is ranked 21st out of 63 high schools in the Austin area, according to "Niche.com," a school rankings and review website. McCallum High, by Niche's standards, is the 17th best public high school, excluding charter schools and the district magnet, in the Austin metropolitan area, and it is the 3rd best (non-magnet), high school in the Austin Independent School District, after Anderson and Bowie high schools (Table 17). [74]

Demographics

Brentwood and Crestview have family-friendly qualities that are difficult to quantify. Besides Lamar and Burnet, the streets are relatively quiet, and tree-lined. Lots are spacious, and the public schools are highly rated. One would associate these characteristics with places one would raise children. They are unpretentious and unassuming, in the same vein as Levittown-esque suburbs which provided a relatively affordable, accessible way for (primarily Caucasian) couples to start a family. While Brentwood and Crestview might be family-friendly in appearances, they are not so in function. According to ACS 2015 (5-year) estimates, only 17% of households in the three Census tracts that make up the neighborhoods (2.05, 15.04, 15.05) include children (Table 18). This is sharply lower than the Austin average, at 28%. A more detailed look at the age breakdown shows that people aged 35-64 are overrepresented in Brentwood and Crestview, as compared to Austin, and people under 17 years and under are underrepresented. Brentwood and Crestview are highly educated—nearly 38% have a bachelor's degree, compared to Austin's average of 30%. And nearly 25% have advanced degrees, compared to the Austin average of 17%. High educational attainment is correlated with high income, and Brentwood and Crestview's median family income is nearly $20,000 higher than Austin's average ($93k vs $74k). Median gross rent in

[74] Austin High School is just behind McCallum, as the 19th best high school in the metro area, and the 4th best in AISD. Children in the very southern portion of Brentwood, as well as Rosedale, Tarrytown, Barton Hills, and Downtown attend Austin High.

Brentwood and Crestview is on par with the Austin average of $1,050. Supply of rental housing is where the three census tracts most differ- Tract 2.05, the southern portion of Brentwood is mostly renters, who make up 64% of households. Crestview (15.04) is mostly owners, who make up 62% of households. The northern portion of Brentwood (15.05) is somewhere in between. In total, the neighborhoods have a slightly smaller proportion of renters (50% of households), than Austin overall (55%).

Austin has a rental vacancy of 5.2%. Brentwood and Crestview have a rental vacancy of 1.0%, according to 2015 American Community Survey 5-year data. They have a much higher ownership vacancy than Austin on average (4.6% vs 14%). This shows two things: 1) Demand for rentals is not currently being met by rental supply: if we assume that those who rent in Brentwood and Crestview are less wealthy than those who own, then Brentwood and Crestview do not provide adequate housing opportunities for those with lower incomes (MFI data confirm this). The higher-than-average owner vacancy is likely because aging homeowners are looking to sell. This provides an opportunity for developers to add more units to the existing housing stock.

Nearly every single-family lot in Brentwood and Crestview is zoned "SF-3," or "family residence" under Austin's current zoning code. This requires a minimum lot size of 5,750 square feet.[75] With two stories and 40% building footprint coverage of the lot allowed, this translates to a maximum floor area ratio of 80%. SF-3 zoning conditionally allows duplexes, if they follow standards that "maintain single-family neighborhood characteristics." Accessory Dwelling Units, or "ADUs," are also allowed, provided that they be no larger than 1,100 square feet.[76]

Transit Access

Both Brentwood and Crestview are accessible to local bus, the MetroRapid 801 and 803 bus routes, and the Crestview Red Line rail station (Figure 24).

[75] "City of Austin Guide to Zoning," Planning and Zoning Department, September 2016, 16.
[76] Jennifer Currington, "City Council Lessens Restrictions on Accessory Dwelling Units," *Community Impact,* November 9, 2015.

Demolition and Building Permit Analysis

Brentwood and Crestview are fascinating Austin case studies because of the juxtaposition of their superior transit access with their restrictive SF-3 zoning. In an urbanist's world, they would be ideal candidates to accept more Missing Middle housing. An analysis of residential demolition and building permits shows that the current zoning code does not reflect the market demand for housing units that are smaller than typical homes in SF-3 zones, but still large enough to accommodate families with children. Allowing more units on these lots than what is currently permitted would increase the market-rate supply of an in-demand housing product at a middle-income price-point, while framing it as a bonus would create protected affordable units for low-income families.

Methodology

I conducted an analysis of residential demolitions and new builds in Brentwood and Crestview. "Issued Building Permits" data since 2008 made available through the City of Austin's Growth Watch initiative informed this analysis.[77] These data points extend until March 2017, when the analysis was conducted. Two pieces of permit data were isolated from the rest: 1) active and final demolition permits for primary residences on residential lots, (including single-family homes, duplexes, and multiplexes, but excluding permits for demolishing existing secondary units alone); and 2) active and final building permits for primary residences on residential lots, (including single-family homes, duplexes, multiplexes, and ADUs if coupled with a new primary unit, but excluding ADUs on their own). I then matched addresses to understand what new-build replaced which demolished home. In many cases, the correlating building permit information appeared missing, or the square footage information was incorrect. I used the Travis County Appraisal District property search feature to confirm addresses and living

[77] New-builds from 2008 were included, of which there were a few, in which case the demolition permits often were issued before 2008.

area square footage of new-builds.[78] I eliminated properties where the demolition permit had been issued, but the building had never actually been demolished, while also taking note of properties that had been demolished but whose lots were still vacant. This analysis also excluded all new-builds that were not on the same lot as a demolished residence. Therefore, any multi-family development that replaced a strip mall on Burnet or Lamar, for instance, was not included. For simplicity's sake, I focus on how many units are on a lot, regardless of the building type, effectively valuing one duplex on one lot the same as one primary residence and ADU on one lot.

Table 5: Demolished Residential Units in Brentwood & Crestview from 2006-March 2017

Demolished Units on Lot	Lots	Average Sq Ft/ Unit	Units Lost
One	173	1,131	173
Two	9	934	18
Total	182	1,113	191

Table 6: New Residential Units that Replaced Demolished Residential Units in Brentwood & Crestview from 2008-March 2017

Units Constructed on Lot	Lots	Average Sq Ft/ Unit	Units Constructed
One	82	2,854	82
Two	91	1,692	182
Three	1	1,650	3
Four	2	1,974	8
Total	176	2,046	275

**Six lots where single-family homes were demolished are vacant. This means that the net increase of 84 units is based on the demolition of buildings on 176 lots.*

[78] New-build square footage only includes living area, (excluding finished basements and garages), while demolished square footage is gross area, meaning those additional spaces would be included. Although, many of those homes likely did not include finished basements or garages.

Key Findings

Across the board, unit sizes have increased significantly. The average square feet per unit is twice as large for new units than the previous units demolished to make way for them. Considering the unit types that inform those numbers shows that this is particularly significant: 90% of demolished units were the only unit on their lot, while 70% of new units are not (mostly duplexes and primary home and ADU combinations).

In both the demolished and new stock, duplexes and primary home/ADU combinations used or use their square feet more efficiently than single units. Within the demolished stock, the difference is not as stark. Single units were on average 200 square feet larger than two-units. Among new-builds, however, single units are nearly on average 800 square feet larger than double units. In fact, the average square feet of a single-family new-build is nearly 2.2 times larger than the average square footage of the single-family home that was demolished to make way for it (1,120 sq ft vs 2,430 sq ft). The units on the three-unit and four-unit lots actually have larger unit sizes than units on two-unit lots on average, (1,650 sq ft for the three-unit lot, 1,973 sq ft for the four-unit lots), though there are only three lots associated with them, and therefore not sufficient for understanding any larger trend (Figures 26, 27).

The fact that 53% of redeveloped lots were not single-family homes shows that there is market demand for Missing Middle housing types such as duplexes, ADUs, and multiplexes, in Brentwood and Crestview (Figure 21). Of the three lots with three or four units, one (5602 Jim Hogg Ave, which is two duplexes on one lot), received a zone change to "MF-2" in 2004.[79] MF-2, or multi-family low-density, allows up to 23 units per acre, and requires a minimum lot size of 8,000 square feet. [80]

5503 Clay Ave, (which is one single-family unit fronting the street and one duplex in the rear), had previously been large enough (around 14,000 sq ft) to subdivide

[79] 5602 Jim Hogg Ave Permitting History, https://www.austintexas.gov/devreview/b_showpublicpermitfolderdetails.jsp?FolderRSN=234460

[80] "City of Austin Guide to Zoning," 25.

in two while still abiding by the SF-3 minimum lot size.[81] 1000 Taulbee Ln, which, like the Jim Hogg properties is two duplexes, also was large enough (0.5 acre) to subdivide in two.[82] All three are within 0.2 miles of either Burnet or Lamar. More importantly, these three lots happen to be in areas where land was subdivided into unusually large parcels. The lots tend to be over 200 feet long, and at least 50 feet wide, making them over twice the minimum lot size for "SF-3." These areas are concentrated in the northeast corner of Crestview north of Morrow Dr., and the southwest corner of Brentwood, west of Woodrow Ave and south of Koenig Ln, are not representative of the neighborhood. While subdividing them produces more units than what would be available otherwise, this process is just transforming a large-lot anomaly into a density that is the status quo of the neighborhood. (See Tables 19-25 for full data).

This analysis shows that demolitions will occur even in an environment with strict limits on density. Residential demolition permits issued in Brentwood and Crestview gradually increased from 2 in 2006 to 42 in 2015, which represented 1.1% of all SF-3 zoned lots in Brentwood and Crestview at that moment (Table 26).[83] In a hot market, where land is scarce, lot flippers are a sure thing. Policymakers should ensure that the new land development code allows the production of inclusive housing types. Otherwise, under a restrictive code, the demolition and construction trends of Brentwood and Crestview show that large, single-family homes are encouraged, and high-income homebuyers are prioritized over low and middle-income homebuyers. This trend would change by incentivizing Missing Middle housing types which would include multiple units on single lots.

[81] 5503 Clay Ave Permitting History, https://abc.austintexas.gov/web/permit/public-search-other?t_detail=1&t_selected_folderrsn=10754956&t_selected_propertyrsn=880712

[82] 1000 Taulbee Ln Permitting History, https://abc.austintexas.gov/web/permit/public-search-other?t_detail=1&t_selected_folderrsn=11179555&t_selected_propertyrsn=889988

[83] This table was calculated by finding that there are around 3,920 residential lots in Brentwood and Crestview zoned "SF-3." Each year, the total amount of lots already redeveloped, starting in 2006, is subtracted from 3,920, because those units would no longer be considered vulnerable to redevelopment.

Chapter 8: CodeNEXT: Rewriting Austin's Land Development Code

Austin is currently in the process of rewriting its complex and lengthy land development code. As of July 2017, the new code will effectively include two zoning codes in one: most areas in the urban core will be governed by a form-based code through "transect zones." Outer areas of the city, and areas that require more intensive land use planning will be governed by a traditional, Euclidean-based zoning code, with use restrictions. The transect zones in theory should allow for more compact development and a greater diversity of housing types. Each zone has a specific physical pattern by which new development should abide, though a wider range of uses are allowed by right. The transects range from less urban (T3), to more urban (T6), but those on the "less urban" end still carry a New Urbanist purpose. For instance, the intent for "T3 Neighborhood.Intermediate Setback" is "to provide a wide variety of housing choices which reinforce the walkable nature of the neighborhood, support neighborhood-serving retail and service uses near this zone, and support public transportation options"[84] The fine print of the CodeNEXT zoning map and code document show that changing areas to "T3" and "T4" zones will likely not add a significant amount more of housing units by right than the status quo would otherwise. According to Fregonese Associates' Housing Capacity analysis, the CodeNEXT update is projected to add a net gain of about 140,000 housing units over the next ten years in the City of Austin. [85]While this sounds significant, delving into their Envision Tomorrow Scenario Builder document shows that most of these units are in zoning categories that are not changing under CodeNEXT. In other words, these units would likely be added by maintaining the current zoning. Euclidean residential and commercial zones account for over 60% of the net gain in units, and planned unit developments, which were approved under the current code, account for 13%. Only 1.5% and 4% of net gain in units is attributable to T3 and T4 zones respectively.

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[84] *City of Austin Draft Land Development Code*, Chapter 23-4: Zoning Code, 4D.2, 6.
[85] Fregonese Associates, "UPDATED Housing Capacity Scenario Builder" excel document at http://austintexas.gov/department/about-codenext, accessed 7/14/2017.

Table 7: CodeNEXT Housing Capacity Projection

New Units	162,011
Demolished Units	22,394
Net Gain in Units	139,617

Zoning Category	Unit Net Gain
T3	1.5%
T4	3.9%
T5	16.2%
PUDs	13.1%
Commercial	30.5%
Residential	32.7%
Industrial	0.0%
UNO Density Bonus	2.1%

The proposed zoning for Brentwood and Crestview sheds light on how transect zones will come into play (Figure 28, Table 27). Most lots currently zoned SF-3 will be some version of "T3" under the new code, with minimum lot sizes ranging from 4,000 to 7,200 square feet. Suggested unit types in "T3" are similar to current regulations for "SF-3:" single-family homes, duplexes, and ADUs are allowed, with cottage courts and corners, (six and three units on one lot respectively) in some T3 zones.[86] Most will be "T3-Neighborhood-Deep Setback," with lots at the periphery "T3-Neighborhood-Edge." Single-family areas in the southern portion of Brentwood, south of Koenig Ln, would be T3-Neighborhood-Intermediate Setback. There are also a few areas, one around two square blocks north of North Loop Blvd, adjacent to lots fronting Lamar Rd., another spanning three blocks south of Ulrich Ave, adjacent to lots fronting Burnet Rd., and multiple small sections south of North Loop Blvd, which will be T4. (T4-Neighborhood, T4 Neighborhood-Shallow Setback, and T4 Neighborhood-Intermediate Setback).[87] A handful of blocks zoned "SF-3" would be "Low-Medium Density Residential," which maintains the same minimum lot size as the current SF-3 zoning (5,750 sq ft), and would carry use restrictions[88] (See Figure 29 for all T3 areas).

CodeNEXT will include a revamp of Austin's existing density bonus programs. The current proposal from ECONorthwest expands areas eligible for bonuses from 12 to

[86] It is questionable if the proposed setback requirements would make such cottage court and corner developments feasible.
[87] CodeNEXT Comparison Map, https://codenext.engagingplans.org/codenext-comparison-map.
[88] Areas currently zoned "SF-3" in portions of Rosedale, Heritage, Clarksville, Travis Heights and Bouldin Creek would be upzoned to "T4."

48 square miles of the city. The current density bonus proposal would allow developers to build more units in T4 and T5 transect zones, where multiplexes are allowed (Figure 30). This appears to accomplish the NHCD's proposed Missing Middle density bonus. But T3 zones are not included, thereby excluding most of Brentwood and Crestview. [89] [90] This is a missed opportunity.

[89] Phillip Jankowski, "Austin Affordability Plan Shows Incentives to Build Taller, Denser," *The Austin American Statesman,* June 16, 2017.
[90] "CodeNEXT Density Bonus Policy Packet- Summer 2017," 6.

Chapter 9: Feasibility of a Missing Middle Density Bonus

It would be financially feasible to create a similar density bonus in the T3 zones. Incorporating T3 areas into the bonus program would likely create many more affordable units than otherwise. I relied on a model from homebuilder David Whitworth, who has built numerous homes in north central Austin, a good number of which have multiple units on single lots. [91]

The model explores four scenarios that incorporate the purchase of a lot with a deferred-maintenance home. The first two scenarios include a lot which could be in a T3 Deep Setback or Intermediate Setback zone. In the other two, the lot is larger, and could be in a T3 Edge or Edge Wide Lot zone. Only single-family, duplex, and ADU house types are permitted in T3 zones currently.[92] However, this exercise shows that adding more units while maintaining the same floor-area ratio yields a greater return on investment for the developer, and therefore an economic justification for the implementation of a density bonus in areas that will fall in the T3 zone. In this model, unit density increases while the physical density, (except for one T3 subzone), abides by the restrictions in the current CodeNEXT draft.

According to Whitworth, a developer would probably expect no lower than a 12% return on investment for a single-family home new-build, though this of course varies depending on the financial needs of the company, and the particular demand for that product. Hypothetically, if a builder put more units than what is allowed by base zoning, there could in some circumstances be enough profit from more market-rate units being sold to designate a certain number of units as affordable. With that in mind, for a builder

[91] Whitworth became rather infamous in the development and neighborhood activist community for using Small Lot Amnesty to build small homes on small lots in North Loop. Small Lot Amnesty allows homes to be built on lots platted before current zoning regulations raised the minimum lot size to, in SF-3 areas, 5,750 sq ft. In 2013, Whitworth demolished two homes that each sat on three small lots, and in turn built six small-lot single-family homes. After these were built, there was a backlash from neighborhood associations, and the city amended “small lot amnesty” to only be applicable on small lots that sit vacant, instead of lots that are occupied by housing already.

[92] Cottage courts and corners are also permitted in some of the T3 zones but it is questionable if they would be feasible given the design limitations.

to choose to do that, the return for the project should be higher than the projected return for a market-rate single-family home.

These two scenarios represent what would happen tomorrow, if a density bonus program of this sort were implemented in Brentwood and Crestview. The first developers to use the bonus would enjoy a large return on investment, substantially larger than the status quo. Over time, land values would gradually rise, as landowners would come to realize that they could obtain higher prices selling to developers planning to put more units on their properties.

Methodology

Site Development Cost

The base model for the two scenarios was provided by Whitworth. For each scenario, the model assumes that 1) the cost to build is $150/square feet. 2) the cost to demolish a home is $15,000. 3) the additional tap work and capital recovery fees is ($8000) water meter connection + ($5,000) sewer connection* (number of units in building minus one) +$25,000, which is the fee for a contractor to install water and sewer lines. 4) The construction loan is the price per square foot to build * the total square footage of the building. 5) The holding costs and taxes are roughly the purchase price of the lot *.0245, the property tax rate, plus the cost of the construction loan *.05, the interest rate on the loan.

Lot and Building Size Requirements

Since most residential lots in Brentwood and Crestview will likely be in various T3 zones, I inputted those lot and building requirements into the model. For each T3 sub-zone, (Edge, Edge-Wide, Intermediate, Deep), I calculated the minimum lot sizes, the maximum building cover, the total buildable square footage allotted, and the subsequent maximum floor-area ratio. While some of the sub-zones have multiple allowed building forms, I used the form that would create the highest floor-area ratio. I then inputted the two T3 subzones with smaller lot sizes (Intermediate, Deep), into the fourplex scenario,

and the two subzones with larger lot sizes (Edge, Edge-Wide), into the sixplex scenario. I maintained the maximum square footage and FAR for all but the "Edge" scenario, where I raised the maximum square footage from 4,416 to 5,000 (raising the FAR from .61 to .69 to make it more in line with the other T3 densities).

Purchase Price of Vulnerable Lots

I found five active for-sale Zillow listings in Brentwood and Crestview for older bungalow ranch homes (most dating from the early 1950s), which have had minimal updates.[93] Their list prices range from $400,000 to $460,000. I subtracted the appraised improvement value, (value of the building), from properties' list prices. I then found that list price for land is on average square footage of the lot *40. Improvement values of the bungalows averaged to be $100,000, with minimal variation. So, I set purchase price as:

(Lot square footage *40) + $100,000.

For the two T3 zones with smaller lots, (Deep and Intermediate), minimum lot sizes required are substantially lower than the 5,750 square feet that nearly every SF-3 lot in Brentwood and Crestview must be. So, those two scenarios assume the developer purchases one home on one lot two times the size of the minimum lot size, and that cost is then divided in two.

Affordable Sales Price

I referenced the City of Austin's "2016 Program Income Limits by Household Size" chart for information on median family income limits for designated affordable housing across family sizes. [94] I incorporated both 80%MFI (family of 4), with a $62,250 annual income limit, and 60%MFI (family of 4), with a $46,680 income limit, into the models. Households should pay no more than 30% of their monthly income on housing.

[93] The five properties are: 1311 Piedmont Ave, 1800 Alegria Rd, 5309 Woodrow Ave, 1511 Arcadia Ave, and 1404 Palo Duro Rd.

[94] "2016 Program Income Limits by Household Size," City of Austin. https://www.austintexas.gov/sites/default/files/files/2016_HUD_MFI_Limits_ONLY_Eff_3-28-16__NHCD_FINAL.pdf

This means that monthly mortgage payments, including tax and insurance, should not exceed $1,808, and $1,357 respectively. Using an online mortgage calculator from University Federal Credit Union shows that the maximum purchase price would be $250,000 for an 80%MFI unit, and $180,000 for a 60% MFI unit. [95]

Market-rate Sales Price

I searched Zillow for for-sale Missing Middle housing. Out of the 8 properties found, none were in buildings with more than two units total. Additionally, because these building types are so rare in Austin, two are outside of the Brentwood/ Crestview boundary (Rosedale, and East Austin).[96] The models test the viability of fourplexes and six-plexes, while the comparables are mostly small-lot detached single-family or side-by-side/ front-back duplex units. To find the discount needed for a unit in a building with more units, I found 10 active for-sale properties in the Mueller neighborhood. I compared the list price per square foot for five small-lot, detached units, with that of five attached rowhouse/ multiplex units.[97] The detached units range from 1,539 to 2,310 square feet, and the attached units range from 1,910 to 2,423 square feet. The average list price dollar per square foot of the detached units is $293.86, compared to $267.79 for attached units, or an 8.9% discount. The following table shows the resulting market-rate benchmark sale assumptions used in the model:

[95] Ideally, these affordable units should be added to the City of Austin's affordable housing inventory, and be governed by regulations to ensure their ongoing affordability.

[96] The eight properties are: 5214 Woodrow Ave #B, 4913 Lynnwood St #2, 2414 E 8th St #2, 5402 Woodrow Ave #A, 1303 Harriet Ct #A, 1813 Burbank St #A, 1707 Brentwood St #A, and 1520 W Saint Johns Ave #A.

[97] The five detached units are: 3900 Threadgill St #2, 4316 Nitschke St, 2113 Philomena St, 4016 Camacho St, and 3907 Briones St. The five attached units are: 4616 Ruiz St, 3905 Vaughan St, 2021 Simond Ave #D, 4623 Berkman St, and 2406 Sorin St.

Table 8: Market-Rate Sale Assumptions

Square Feet	Sale Price	Adjusted for attached units
800	$375,000	$341,250
875	$395,000	$359,450
1000	$425,000	$386,750
1040	$450,000	$409,500
1300	$490,000	$445,900
1800	$540,000	$491,400
2000	$650,000	$591,500

Results

These models represent what the first developers to take advantage of such a density bonus, who would have already purchased their building parcels, would experience if the zoning regulations changed tomorrow. For the fourplex model, a developer would reap a 53% return on investment with the Deep Setback scenario, and a 61% return on investment with the Intermediate Setback scenario, with one unit designated as affordable at 80% MFI, and three at market-rate (Table 28). For the sixplex model, a developer would reap a 38% return on investment with the Neighborhood Edge Wide Lot scenario, with one unit at 80% MFI, one at 60% MFI, and four at market-rate (Table 29). The Neighborhood Edge Lot scenario translates to a 36% return on investment with the same unit breakdown. This incredibly high return reflects the higher risk these developers would assume by delivering an unfamiliar product to the market. The purchase price of the lots are also informed by today's land value. Economic theory says that land value is directly related to how densely land is zoned, and the more dense a landowner expects their land to be developed, the more valuable that land is. So, if we expect these fourplex and sixplex developments to over time become the norm, rather than the creation of a few brave developers, then land value will rise. Density bonuses are only feasible if participating in the bonus produces a high enough return that it is significantly greater than the return from a product allowed by right (a single-family home and ADU or duplex, in Brentwood/ Crestview's case). According to Whitworth, a

typical homebuilder can currently expect around a 12% return on investment for a single-family home, or large duplex. So, one could hypothesize that this density bonus would be feasible until land value becomes high enough where ROI is not significantly greater than 12%. This analysis shows the land residual for the deep setback scenario, or in other words the amount a developer would be willing to pay for the lot before the density bonus becomes infeasible, would be around $480,000 (Figure 31).

Family-Friendly Considerations

If this density bonus program were to be created, it is important that it include site design requirements that would ensure the production of both market-rate and affordable family-friendly units. Primarily, keeping in mind the negative impact crowding can have on children, developers should be required to include a certain amount of two-bedroom or three-bedroom units. This would be particularly important for the lot and building type combinations that would create smaller units, such as the Neighborhood Edge Six-plex or the Intermediate Setback Four-plex. An 800 square foot, two-bedroom unit might be typical in old American cities with a larger stock of historic Missing Middle housing. However, as shown by the permit analysis, homebuilders in Austin's residential neighborhoods today tend to produce units that are very large. The density bonus would create smaller unit sizes that are more in line with Austin's sustainability goals than the oversized units that are currently produced in Brentwood and Crestview. This added site planning requirement would ensure that the units created would be efficiently designed, family-sized, two-bedroom units that emulate historic Missing Middle housing, rather than overly spacious one-bedrooms that are more typical of Austin's recent residential development trends. Additionally, units should be easily accessible to the outdoors. If the site allows, it would be ideal for most units to have private ground-level entrances, with interior stairs to a second floor. Outdoor spaces could be private or shared.

Even with these policies, the density bonus modeled here is limited, because the smaller units created are barely suitable for families with children. They would be better

served with a density bonus that increases the physical density as well. This could simply mean adding a third story while maintaining the same building footprint.

Chapter 10: Conclusion

Families with children, at all income levels, add to the diversity and vibrancy of Austin, and it is vital that they find quality, affordable housing in Austin's central neighborhoods. Austin's current VMU and TOD density bonus programs do not serve families, and purchasing a home in a central neighborhood is cost-prohibitive and exclusionary for even a middle-income family. This density bonus proposal is a political compromise. It would allow neighborhood organizations and affordable housing advocates to find common ground. Instead of allowing more units by right, the community will gain greatly needed affordable housing units when developers opt to produce Missing Middle housing. With land prices rising, development pressure will undeniably continue to change the fabric of these neighborhoods. The land development code rewrite is an opportunity to harness that pressure in a way that creates more housing opportunities for low and middle-income families with children. The feasibility analysis shows that the T3 zone without a density bonus would be overly restrictive, and would not reflect market demand for smaller, more affordable home-ownership units. Expanding the density bonus program to include the many areas zoned T3 would make Austin a more inclusive and family-friendly city.

Appendix

Figure 1: Austin's Interior Residential Neighborhoods that are Predominantly Single-Family, and could be Suitable for a Missing Middle Density Bonus

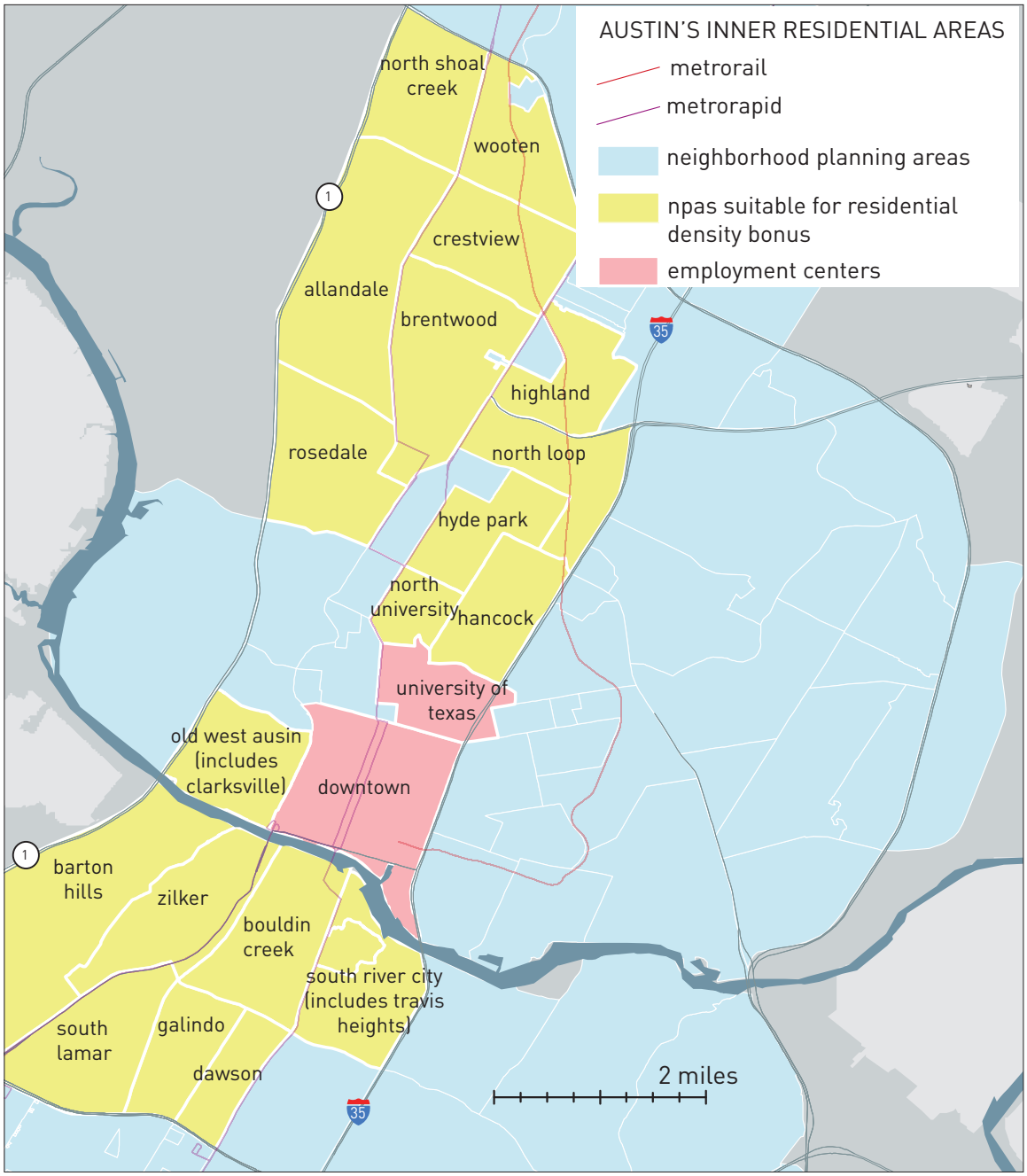


Figure 2: Bedroom Amount by Presence of Children in Household in U.S.

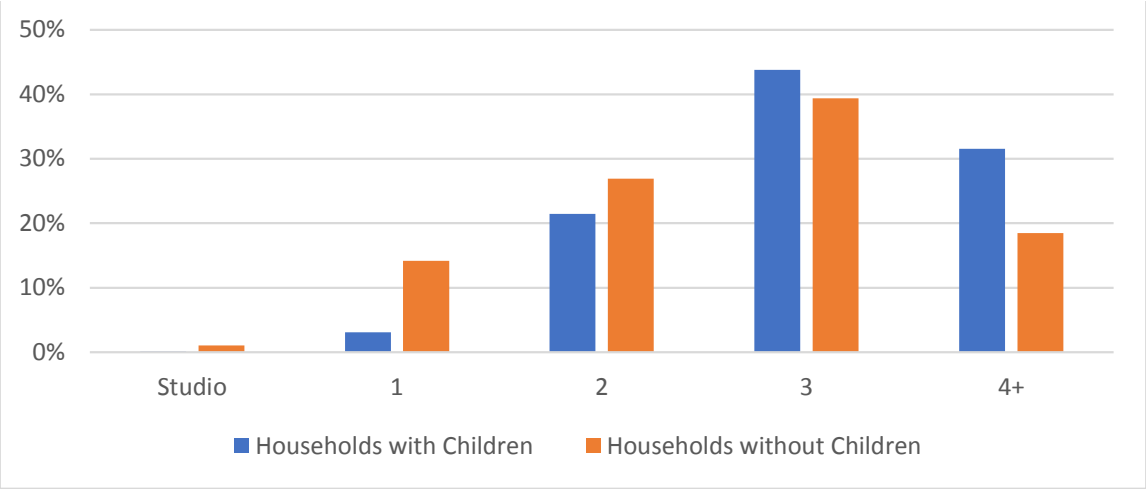


Figure 3: Unit Amount in Building by Presence of Children in Household in U.S.

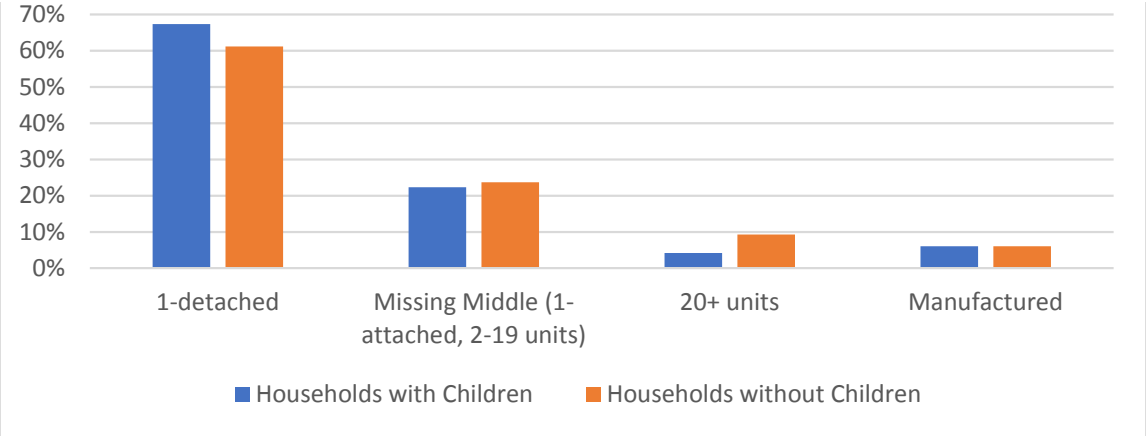


Figure 4: Unit Amount in Building by Household Income Level in U.S.

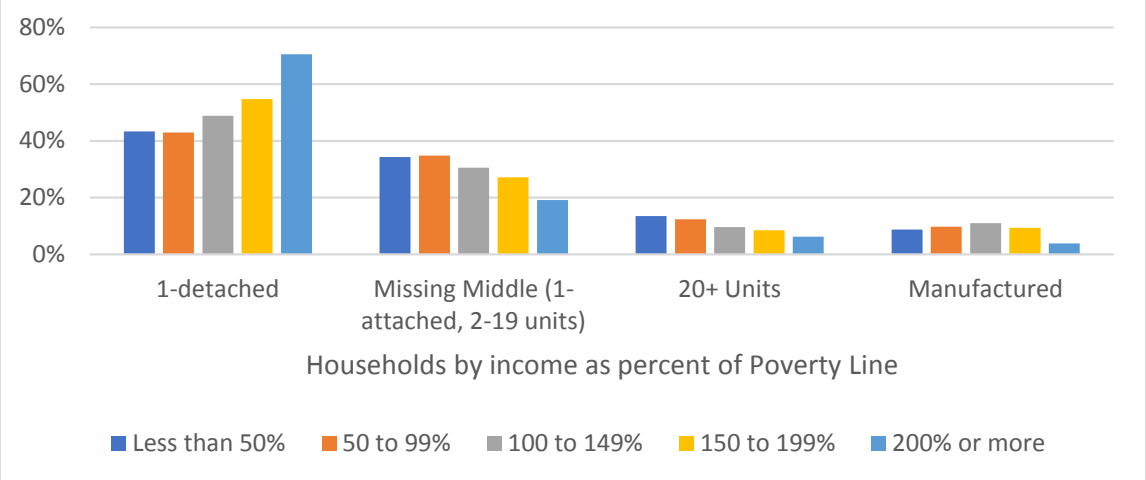


Figure 2-4 Source: American Housing Survey, National Data, 2015

Table 9: Percentage of Households with Children Among a Range of Large U.S. Cities

City	Percentage of Households with Children
San Francisco	18.6%
Seattle	20.1%
Atlanta	21.0%
Washington D.C.	21.6%
Minneapolis	24.2%
Denver	25.7%
Philadelphia	27.2%
Austin	**27.9%**
Chicago	28.7%
New York City	30.5%
Los Angeles	31.6%
Dallas	**32.8%**
Charlotte	33.0%
Houston	**33.7%**
San Antonio	**36.2%**
Fort Worth	**40.6%**
TOTAL	29.8%

Table 10: Austin and Comparable Cities, 2010

Indicator	Los Angeles	San Francisco	Charlotte	Austin	Houston	Seattle
Total Population	3,772,486	789,172	705,896	764,129	2,068,026	595,240
Households with Minors	34%	19%	34%	29%	35%	20%
Median Family Income	$57,974	$93,279	$68,805	$69,593	$51,232	$95,681
Housing units (2010)	1,408,765.00	372,560.00	311,891.00	345,283.00	889,489.00	302,465.00
Rental Vacancy	4%	5%	9%	7%	14%	4%
Sale Vacancy	2%	2%	3%	2%	3%	2%
"1-unit detached" Units	555,379	64,999	180,200	160,891	407,703	139,023
"1-unit detached" Units / Housing Stock	39%	17%	58%	47%	46%	46%
Units in 2-19 Unit Buildings / Housing Stock	34%	57%	31%	33%	36%	26%
Units in 20+ Unit Buildings / Housing Stock	26%	25%	10%	19%	17%	27%
Median Year Structure Built	1960	1939	1987	1983	1975	1958
Median Gross Rent	$1,171	$1,444	$895	$959	$862	$1,042
Median Gross Rent as a % of Household Income	34%	28%	29%	30%	30%	29%

Table 11: Austin and Comparable Cities, 2015

Indicator	Los Angeles	San Francisco	Charlotte	Austin	Houston	Seattle
Total Population	3,900,794	840,763	792,137	887,061	2,217,706	653,017
Households with Minors	32%	19%	33%	28%	34%	20%
Median Family Income	$54,939	$96,336	$65,887	$73,928	$51,046	$102,832
Housing Units (2015)	1,436,543	383,676	333,257	380,280	927,107	315,950
Rental Vacancy	4%	3%	6%	5%	10%	3%
Sale Vacancy	1%	1%	2%	1%	2%	2%
"1-unit detached" Units	556,054	74,359	188,081	177,914	418,324	137,690
"1-unit detached" Units / Housing Stock	39%	19%	56%	47%	45%	44%
Units in 2-19 Unit Buildings / Housing Stock	33%	54%	30%	31%	32%	26%
Units in 20+ Unit Buildings / Housing Stock	28%	26%	12%	21%	22%	30%
Median Year Structure Built	1961	1942	1989	1986	1977	1962
Median Gross Rent	$1,209	$1,558	$926	$1,047	$873	$1,185
Median Gross Rent as a % of Household Income in	37%	28%	29%	30%	30%	28%

Table 12: 2010-2015 Change

Indicator	Los Angeles	San Francisco	Charlotte	Austin	Houston	Seattle
"1-Unit detached" Housing Units	0%	14%	4%	11%	3%	-1%
Housing Units	2%	3%	7%	10%	4%	4%
Population	3%	7%	12%	16%	7%	10%
Median Family Income *in 2015 adjusted USD	-5%	3%	-4%	6%	0%	7%
Households with Minors	-6%	5%	4%	7%	2%	8%
Median Gross Rent	3%	8%	3%	9%	1%	14%
Median Gross Rent (raw)	$ 38.00	$ 114.00	$ 31.00	$ 88.00	$ 11.00	$ 143.00

Source: American Community Survey, 2010 & 2015 5-year estimates, Social Explorer

Figure 5: The Austin Metropolitan Area

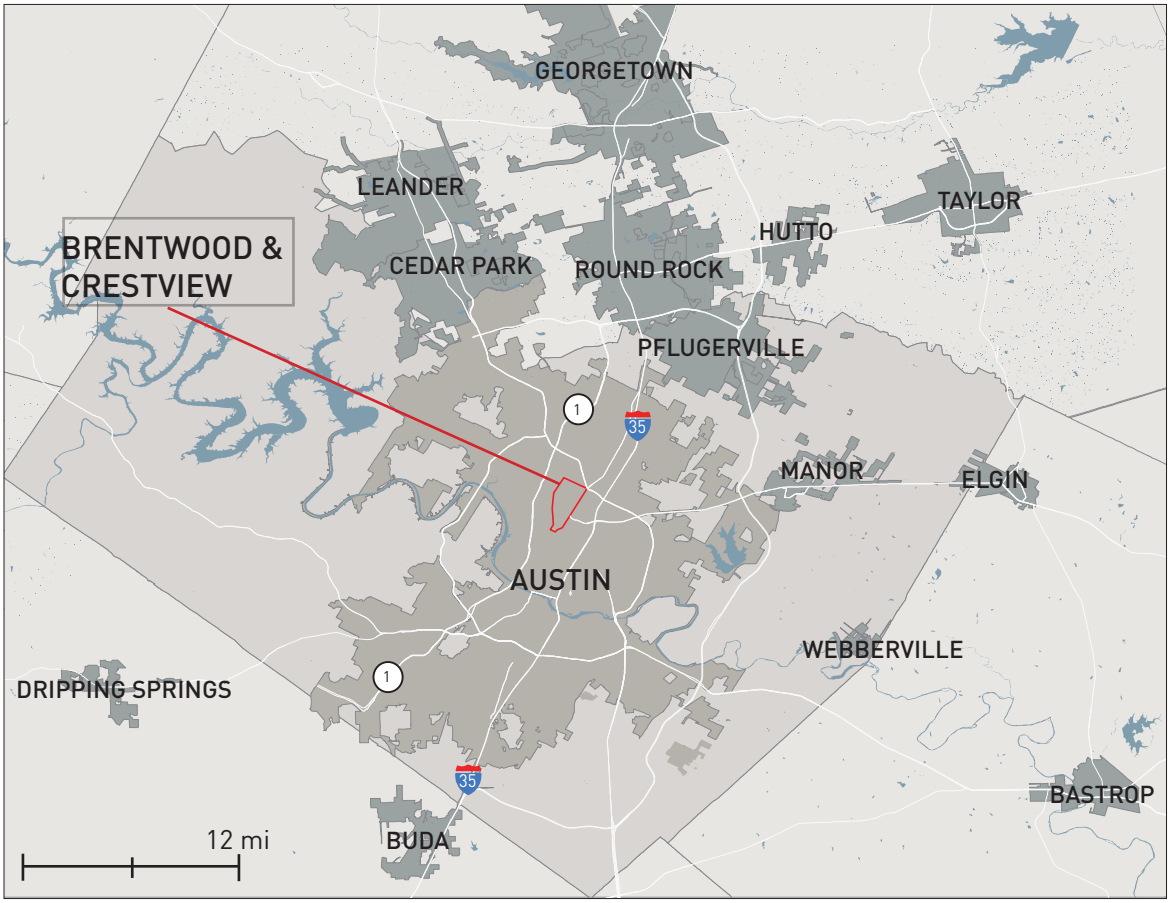
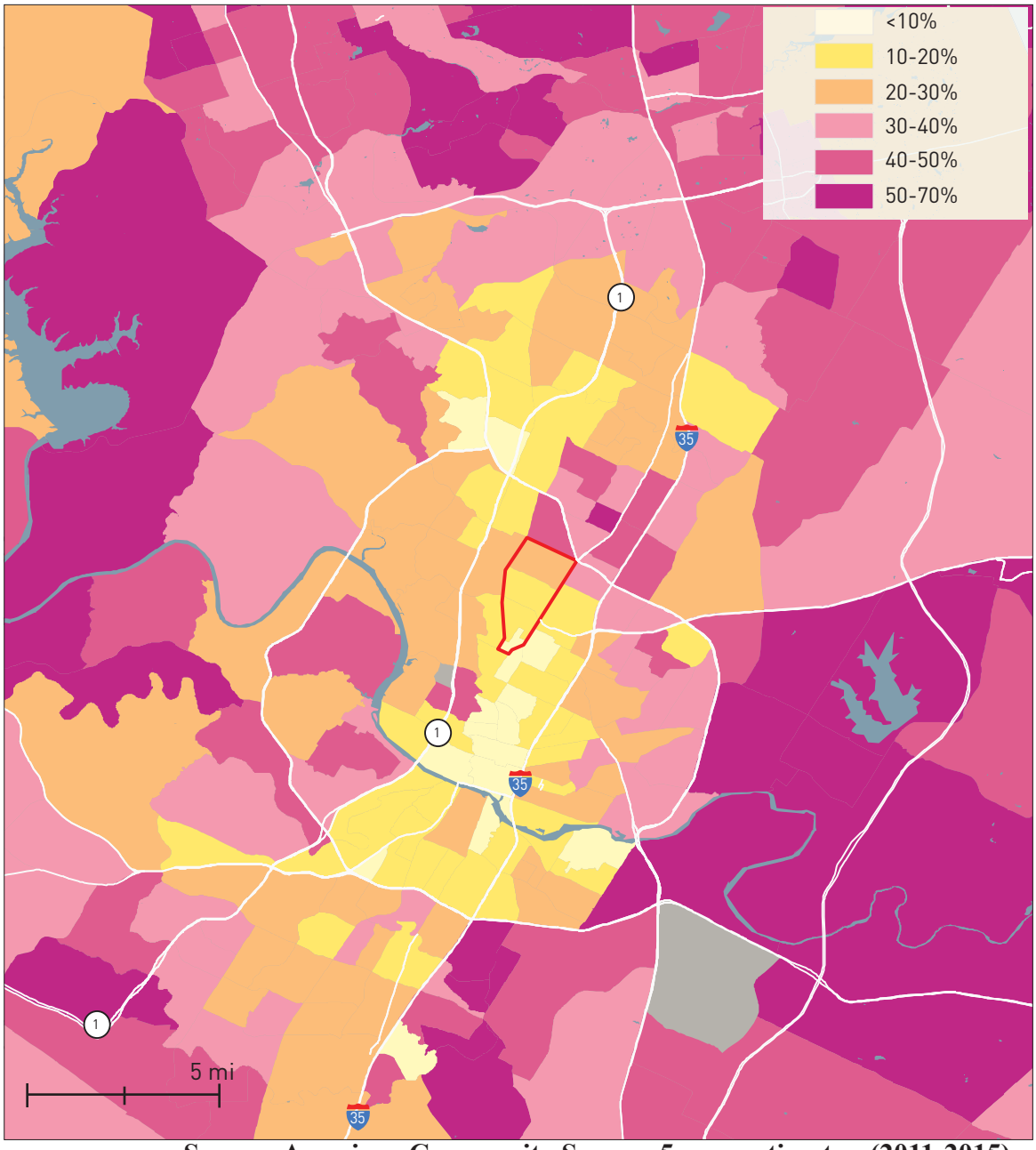
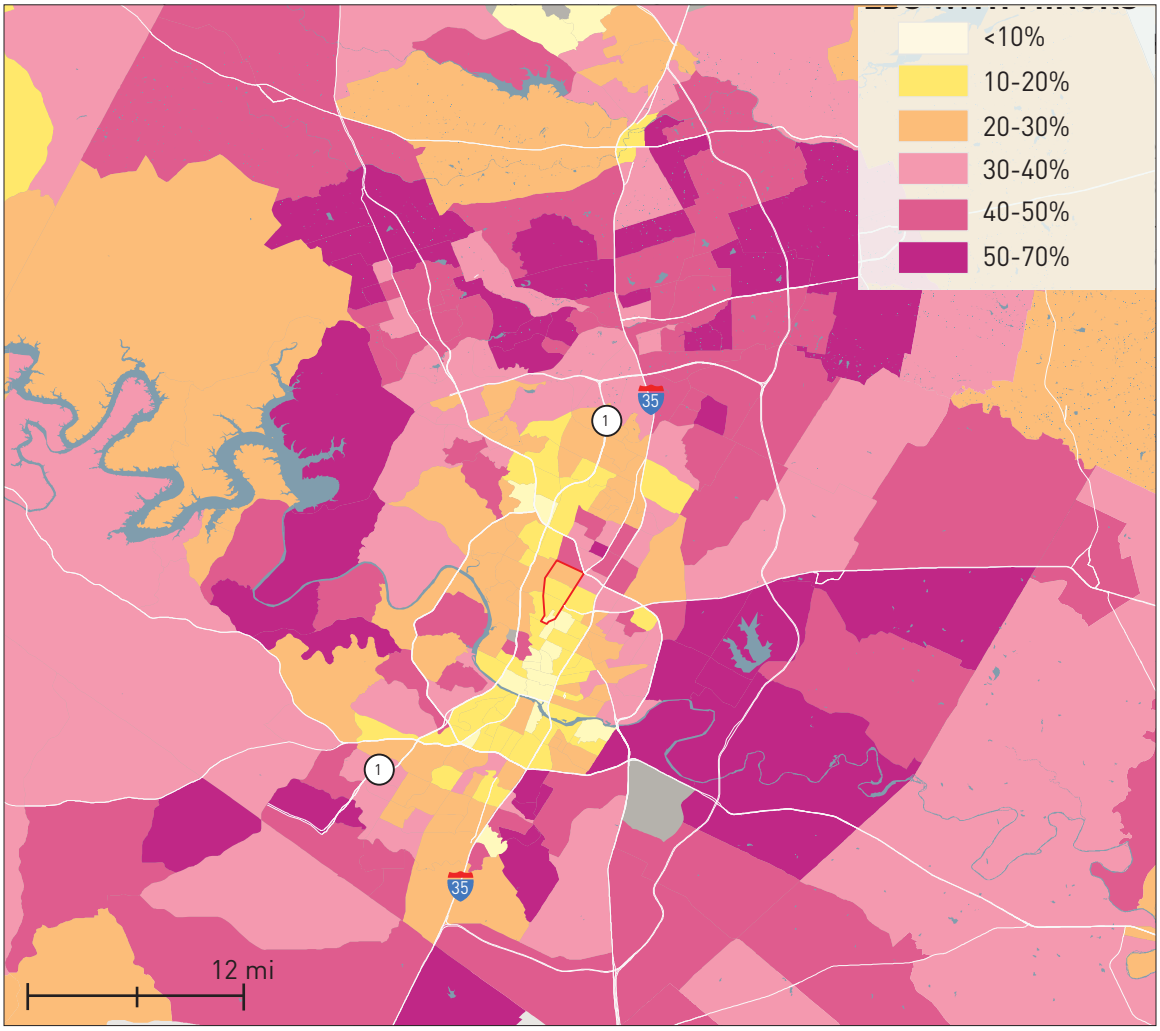


Figure 6: Households with Individuals under 18: Austin Detail



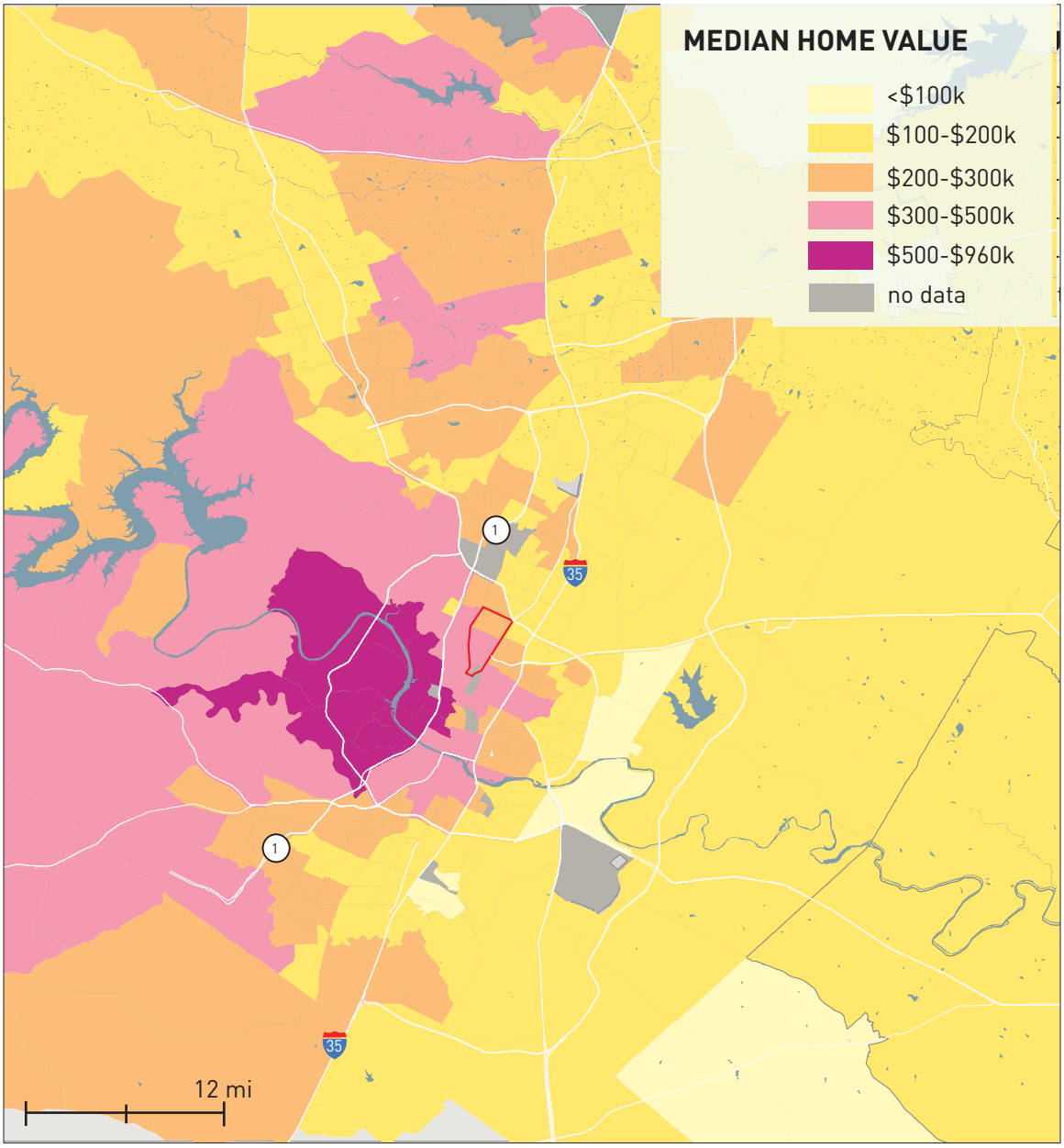
Source: American Community Survey, 5-year estimates, (2011-2015)

Figure 7: Households with Individuals under 18: Metropolitan Scale



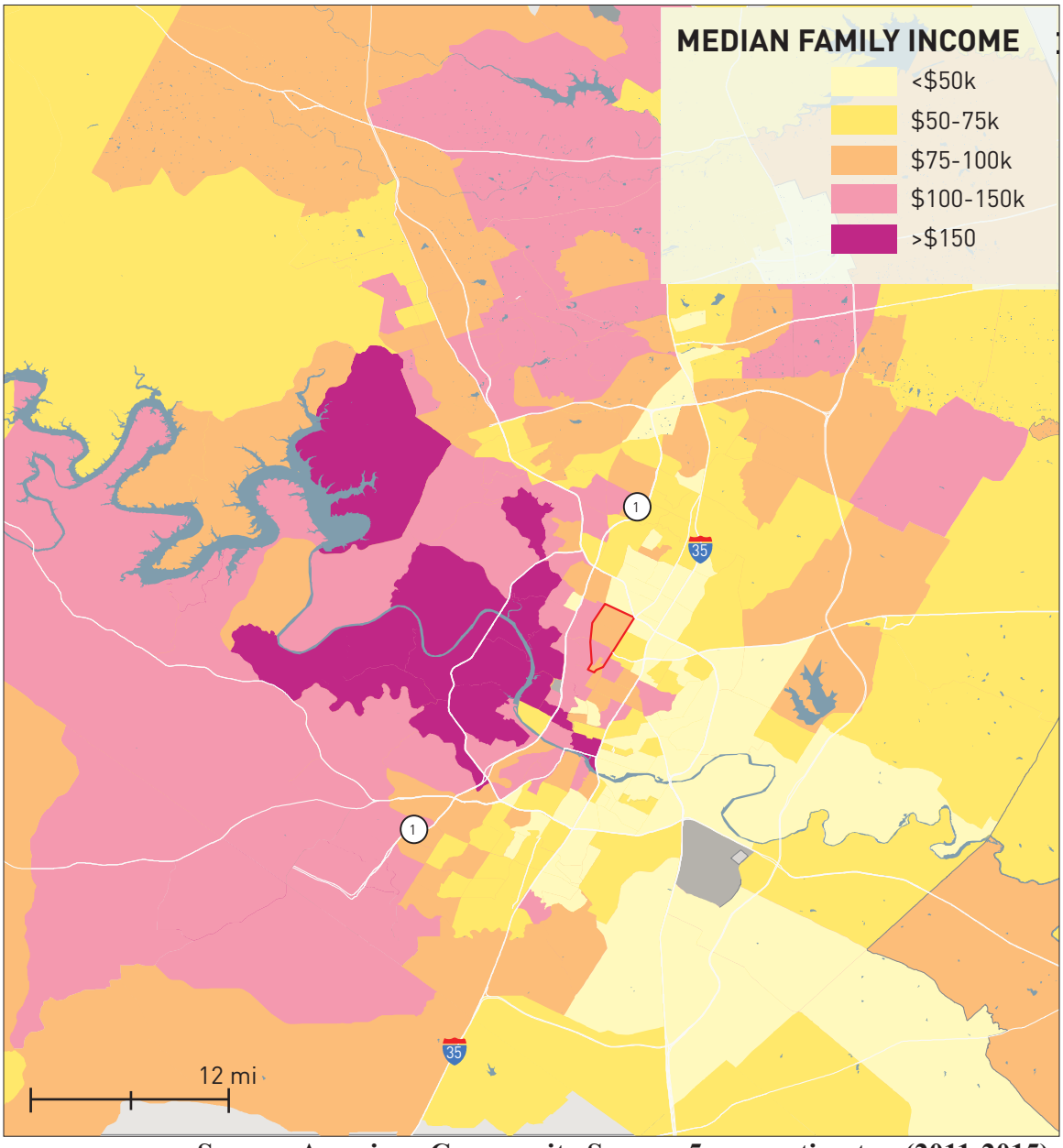
Source: American Community Survey, 5-year estimates, (2011-2015)

Figure 8: Median Home Value



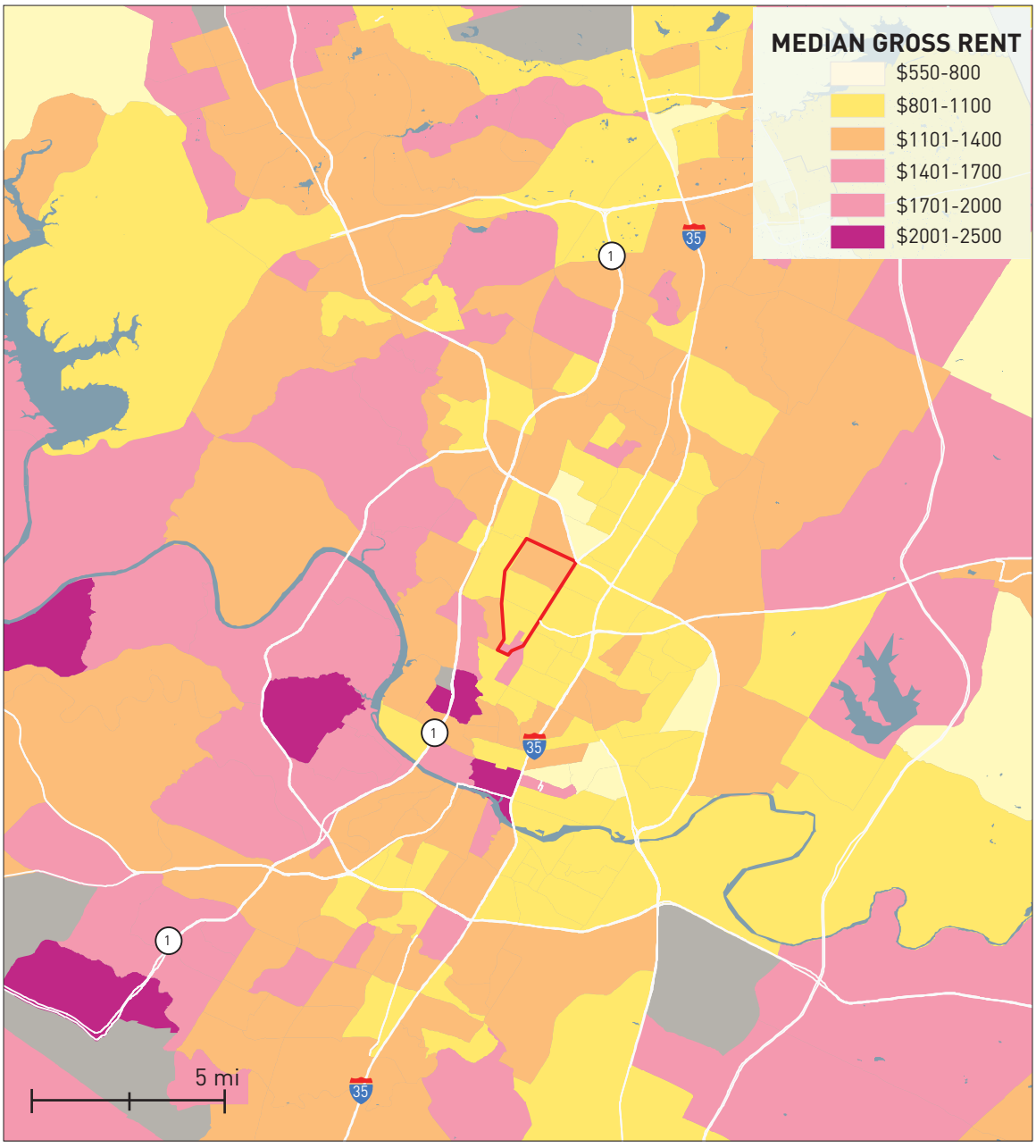
Source: American Community Survey, 5-year estimates, (2011-2015)

Figure 9: Median Family Income



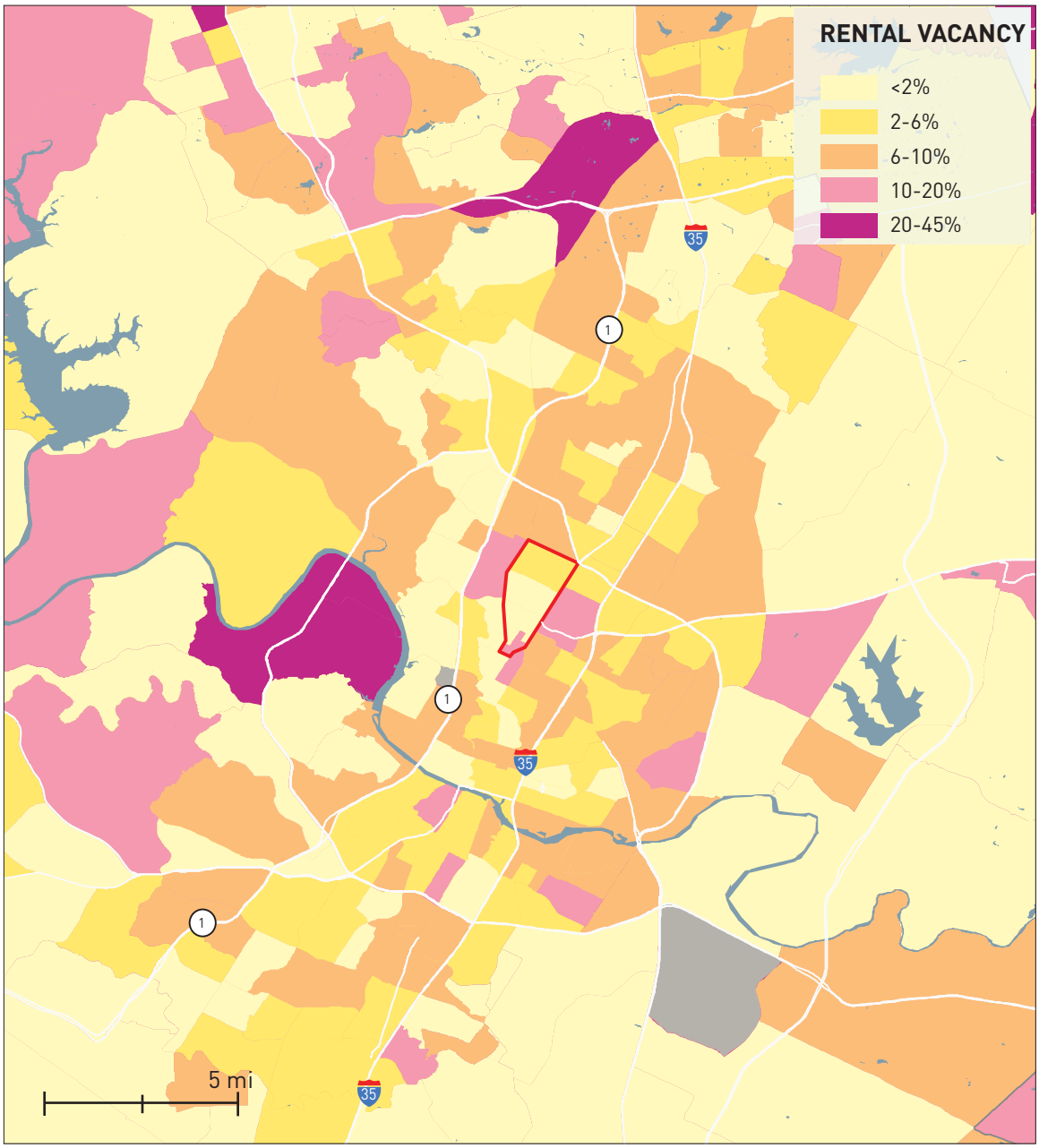
Source: American Community Survey, 5-year estimates, (2011-2015)

Figure 10: Median Gross Rent



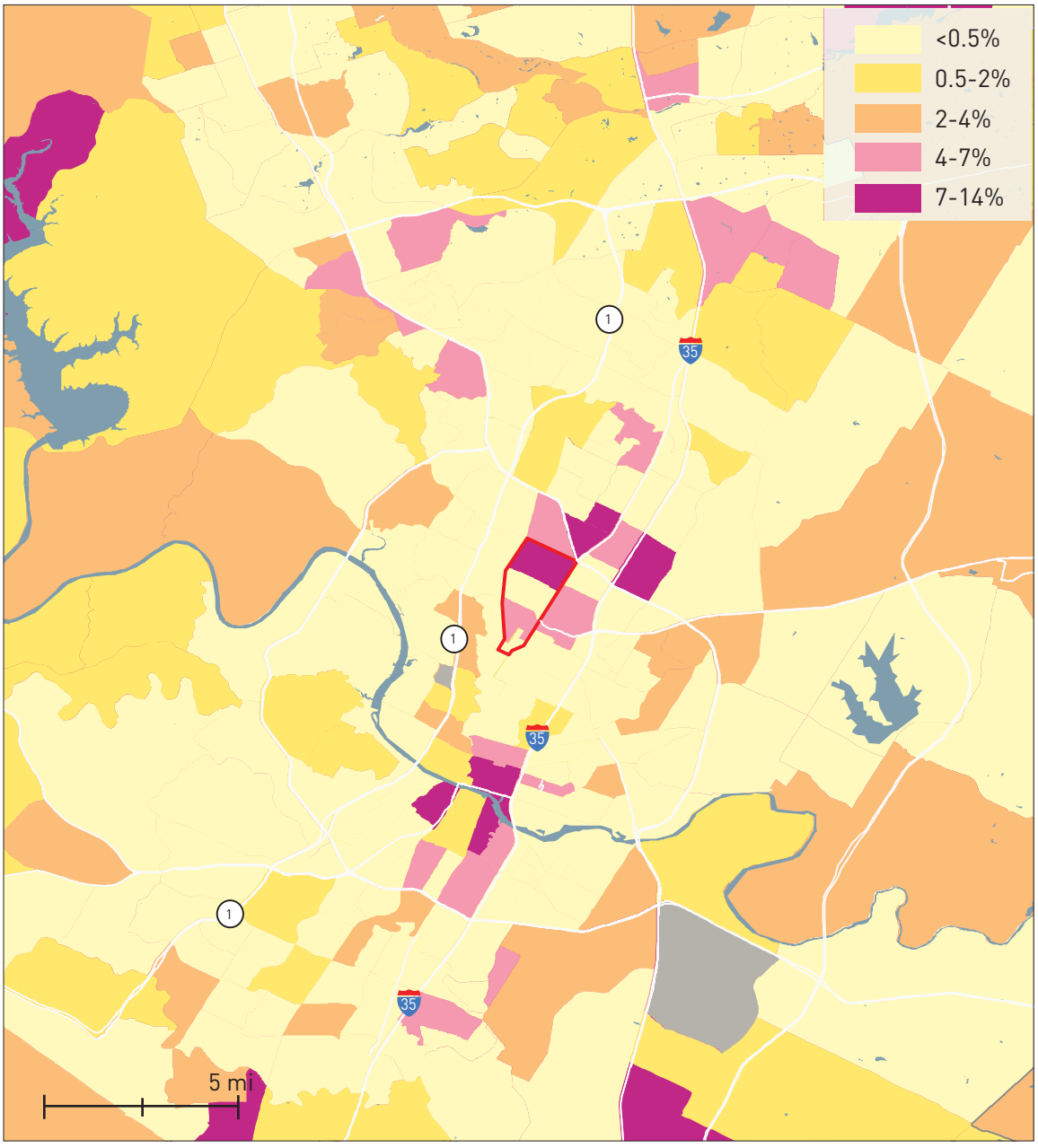
Source: American Community Survey, 5-year estimates, (2011-2015)

Figure 11: Rental Vacancy (Units for rent / total rental stock)



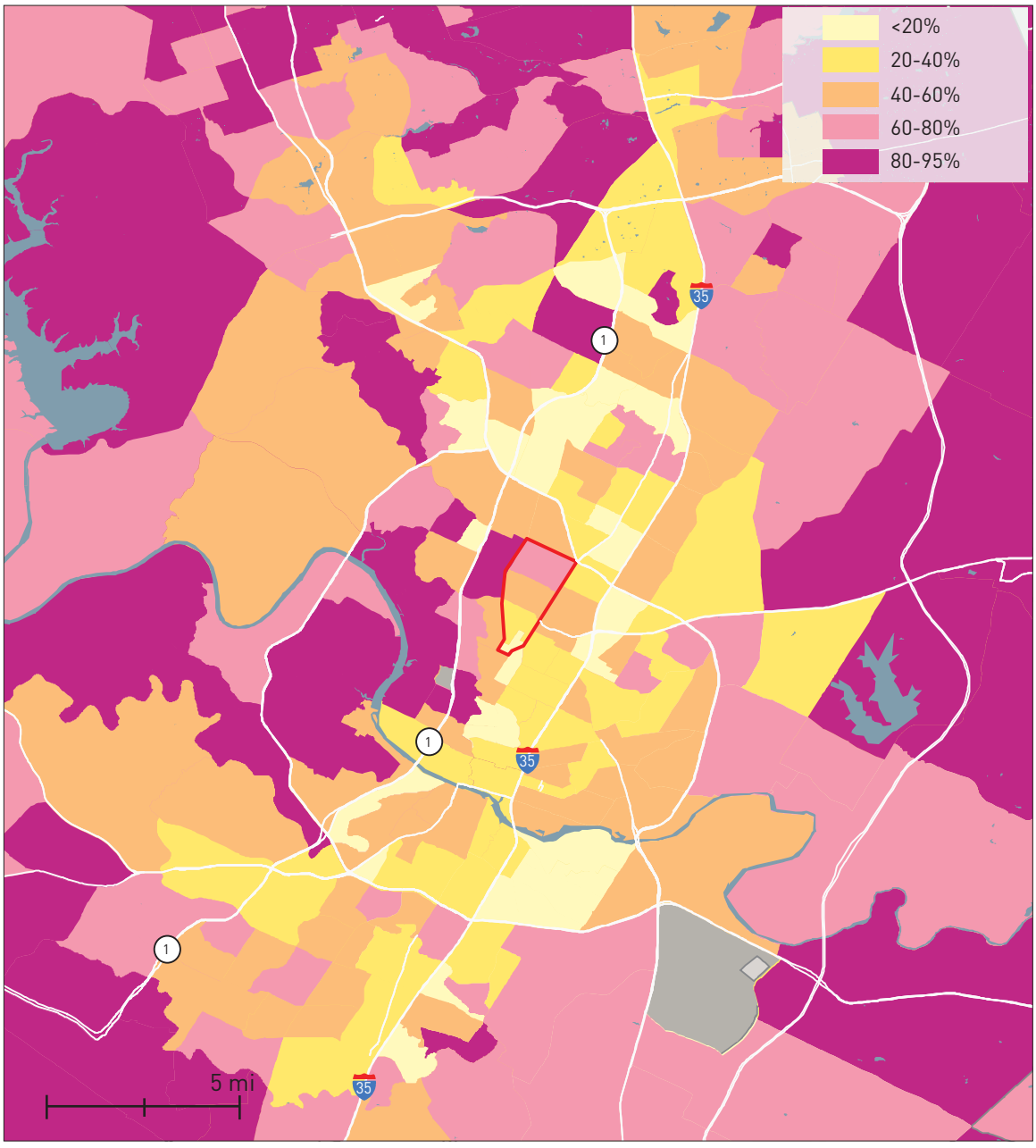
Source: American Community Survey, 5-year estimates, (2011-2015)

Figure 12: Sale Vacancy (Units for sale/ total ownership stock)



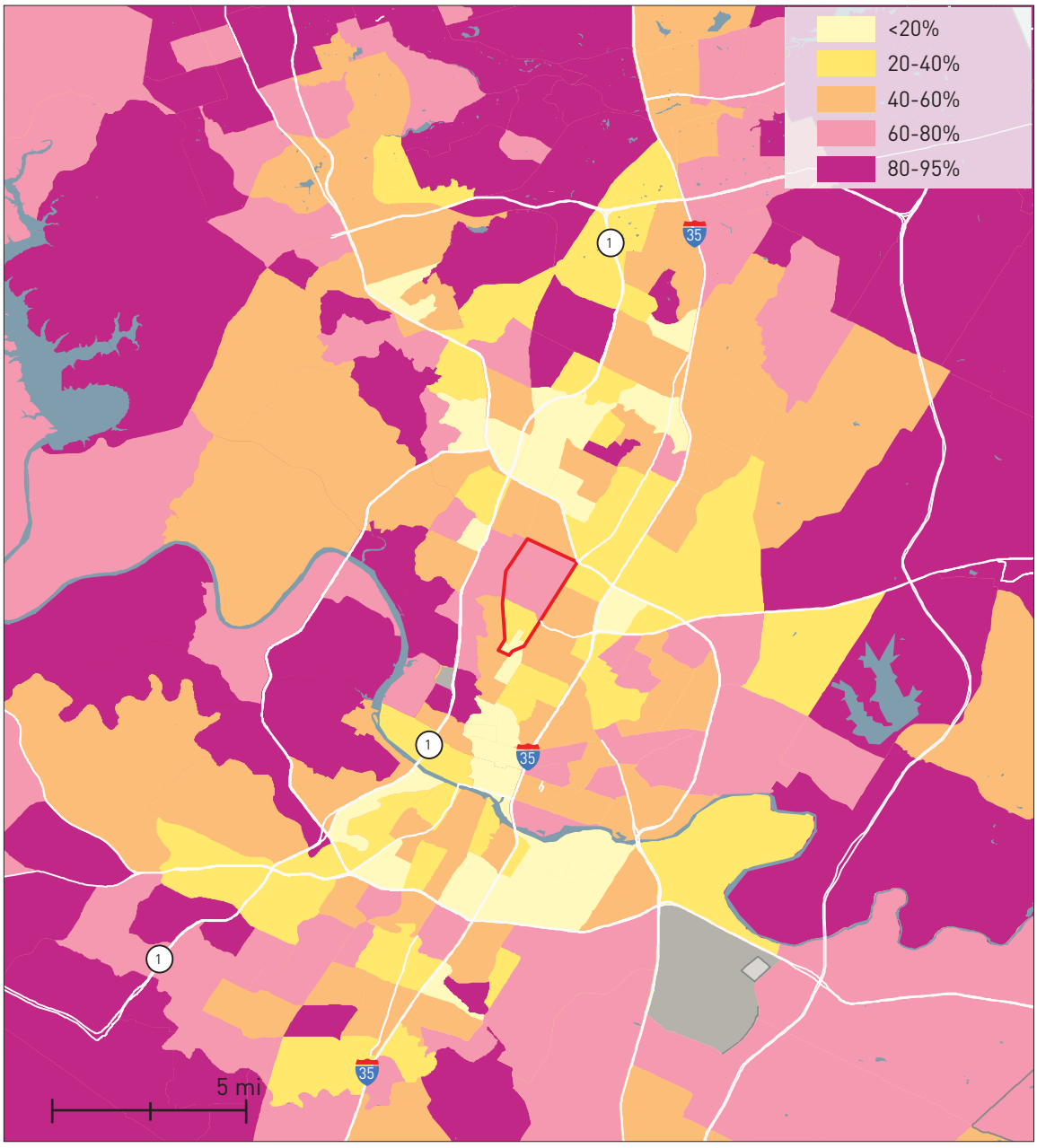
Source: American Community Survey, 5-year estimates, (2011-2015)

Figure 13: Owner-Occupied Housing Units of Total Occupied Units



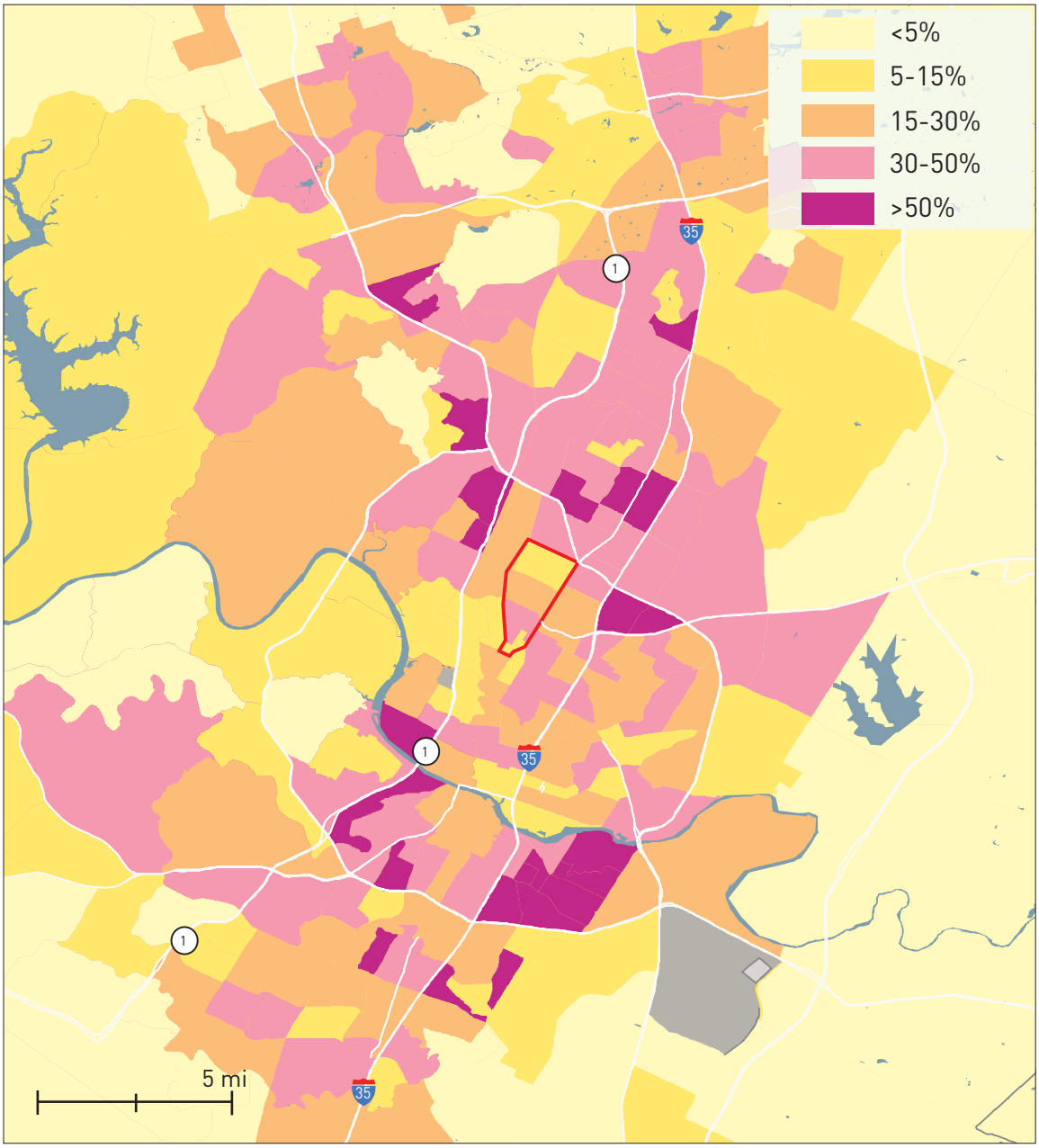
Source: American Community Survey, 5-year estimates, (2011-2015)

Figure 14: "1-Unit Detached" Units of Total Housing Units



Source: American Community Survey, 5-year estimates, (2011-2015)

Figure 15: Units in Buildings with 2-19 Units (including "1-Unit Attached") of Total Housing Units



Source: American Community Survey, 5-year estimates, (2011-2015)

Figure 16: Net Units Added from 1990 to 2015 by Unit Type in Houston and Austin (1990 Census, 2015 5-year American Community Survey, Social Explorer)

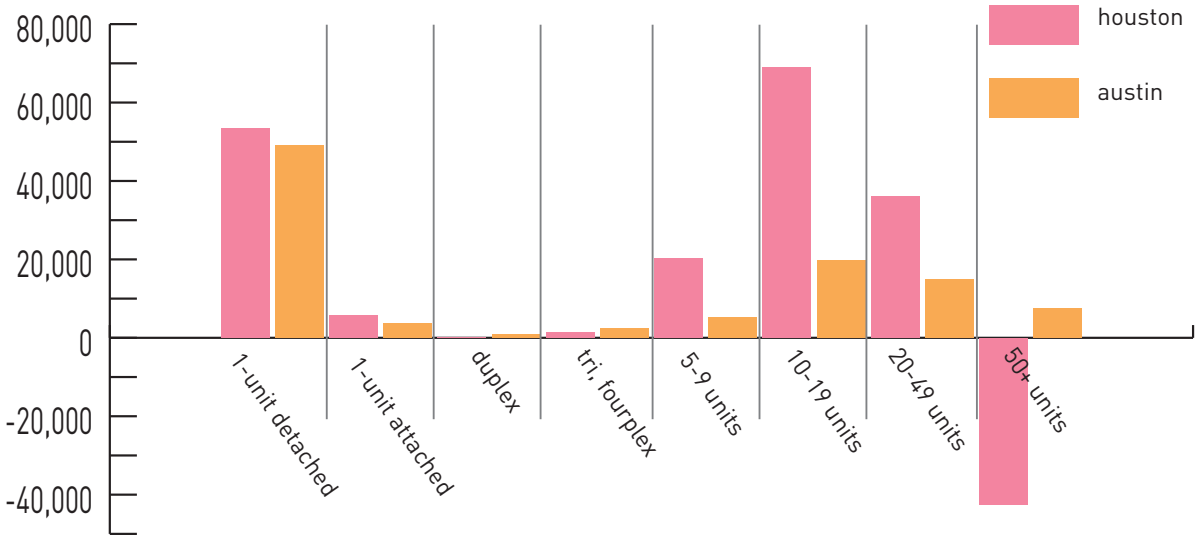


Figure 17: Bedroom Amounts for Missing Middle Units by Building Type in Houston (American Housing Survey, 2015) (in thousands)

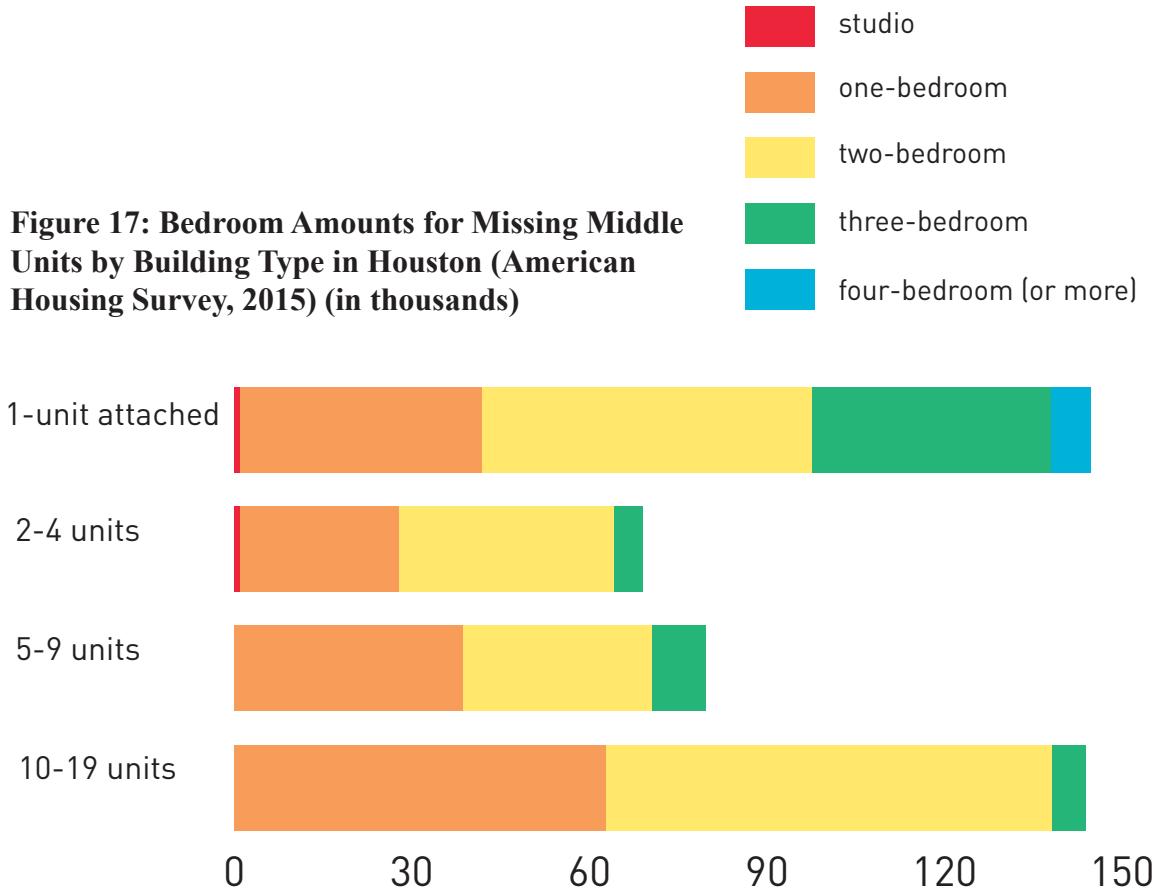


Table 13: Policy Objectives in Imagine Austin Comprehensive Plan Related to Missing Middle and Family-Friendly Development

S P12	Increase the variety of housing options (such as the types of housing and number of bedrooms) to meet the needs of family and non-traditional house holds, including households with children. (172)
S P21	Increase dense, compact family-friendly housing in the urban core by creating standards and guidelines that encourage private interests to create more family-friendly development. (173)
S P20	Enact land use and other planning policies that enhance the quality of life for families with children and promote family-friendly neighborhoods and ser vices (173)
LUT P5	Create healthy and family-friendly communities through development that includes a mix of land uses and housing types, affords realistic opportunities for transit, bicycle, and pedestrian travel, and provides community gathering spaces, neighborhood gardens and family farms, parks, and safe outdoor play areas for children (118)
LUT P10	Direct housing and employment growth to activity centers and corridors, preserving and integrating existing affordable housing where possible (119)
HN P1	Distribute a variety of housing types throughout the City to expand the choices available to meet the financial and lifestyle needs of Austin's diverse population (137)
HN P5	Promote a diversity of land uses throughout Austin to allow a variety of housing types including rental and ownership opportunities for singles, families with and without children, seniors, persons with disabilities, and multi-generational families (137)
HN P4	Connect housing to jobs, child care, schools, retail, and other amenities and services needed on a daily basis, by strategies such as:--Coordinating and planning for housing near public transportation networks and employment centers to reduce household transportation costs and vehicle miles traveled (137)
HN P10	Create complete neighborhoods across Austin that have a mix of housing types and land uses, affordable housing and transportation options, and access to healthy food, schools, retail, employment, community services, and parks and recreation options (138)
HN P11	Protect neighborhood character by directing growth to areas of change and ensuring context sensitive infill in such locations as designated redevelopment areas, corridors, and infill sites (138)

Table 14: Bedroom Amounts for Market-Rate and Affordable Units in Select Developments Using the Transit-Oriented Development Density Bonus

Project	Developer	Address	Type	Total Units
Eastside Station	Flournoy Development	1700 E 4th St	Rental	330
Seville	JCI Residential	1401 E 4th St	Rental	27
Eastside Village	Transwestern	1621 E 6th St	Rental	346
Arnold 2	Transwestern	1614 E 6th St	Rental	115
Studio East	Transwestern	1630 E 6th St	Rental	139
TOD Overall				957

Project	Market-Rate Units	Studio/MR Units	1 BR/MR Units	2 BR/ MR Units	3 BR/ MR Units
Eastside Station	288	15%	62%	23%	0%
Seville	24	0%	100%	0%	0%
Eastside Village	280	7%	52%	41%	0%
Arnold 2	93	0%	63%	37%	0%
Studio East	122	100%	0%	0%	0%
TOD Overall	807	23%	50%	27%	0%

Project	Affordable Units	Studio/ A Units	1 BR/ A Units	2 BR/ A Units
Eastside Station	42	14%	62%	24%
Seville	3	0%	100%	0%
Eastside Village	66	70%	30%	0%
Arnold 2	20	40%	60%	0%
Studio East	17	100%	0%	0%
TOD Overall	148	52%	41%	7%

Table 15: Bedroom Amounts for Market-Rate and Affordable Units in Select Developments Using the Vertical-Mixed Use Density Bonus

Project	Developer	Address	Type	Total Units
1615 E 7th St	24th Street Investments	1615 E 7th St	Ownership	19
3110 S Congress Ave	24th Street Investments	3110 S Congress Ave	Ownership	20
6444 Burnet Rd	24th Street Investments	6444 Burnet Rd	Rental	38
Lamar Union	Greystar	1100 S Lamar Blvd	Rental	442
Bell South Lamar	Lamar Manchaca Residential	2717 S Lamar Blvd	Rental	357
Post South Lamar 1	Post Properties	1500 S Lamar Blvd	Rental	298
Post South Lamar 2	Post Properties	1414 S Lamar Blvd	Rental	344
West Koenig Flats	Stillwater Hyde Park Development	5608 Ave F	Rental	210
VMU Overall				1728

Project	Market-Rate Units	Studio/MR Units	1 BR/MR Units	2 BR/ MR Units	3 BR/ MR Units
1615 E 7th St	14	0%	50%	50%	0%
3110 S Congress Ave	18	11%	44%	44%	0%
6444 Burnet Rd	34	0%	53%	47%	0%
Lamar Union	398	2%	75%	23%	0%
Bell South Lamar	324	2%	67%	31%	0%
Post South Lamar 1	268	0%	66%	34%	0%
Post South Lamar 2	309	13%	59%	28%	0%
West Koenig Flats	189	0%	69%	25%	5%
VMU Overall	1554	4%	67%	29%	1%

Project	Affordable Units	Studio/ A Units	1 BR/ A Units	2 BR/ A Units
1615 E 7th St	5	100%	0%	0%
3110 S Congress Ave	2	100%	0%	0%
6444 Burnet Rd	4	100%	0%	0%
Lamar Union	44	98%	2%	0%
Bell South Lamar	33	100%	0%	0%
Post South Lamar 1	30	0%	100%	0%
Post South Lamar 2	35	0%	100%	0%
West Koenig Flats	21	0%	100%	0%
VMU Overall	174	50%	50%	0%

Figure 18: Austin's Developments Using Density Bonuses by Program Type

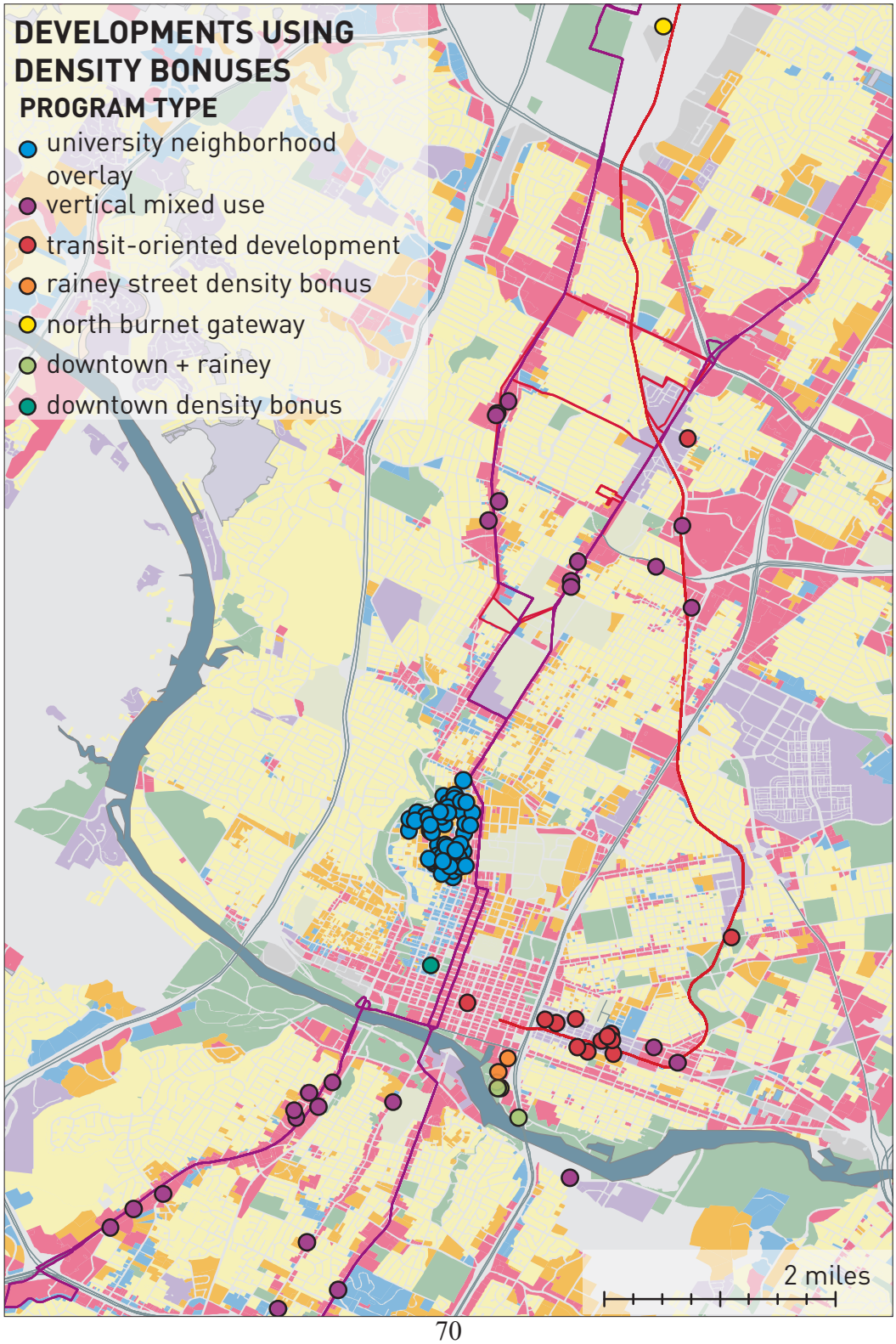


Figure 19: Affordable Units Created from Austin's Density Bonus Programs by Individual Developments

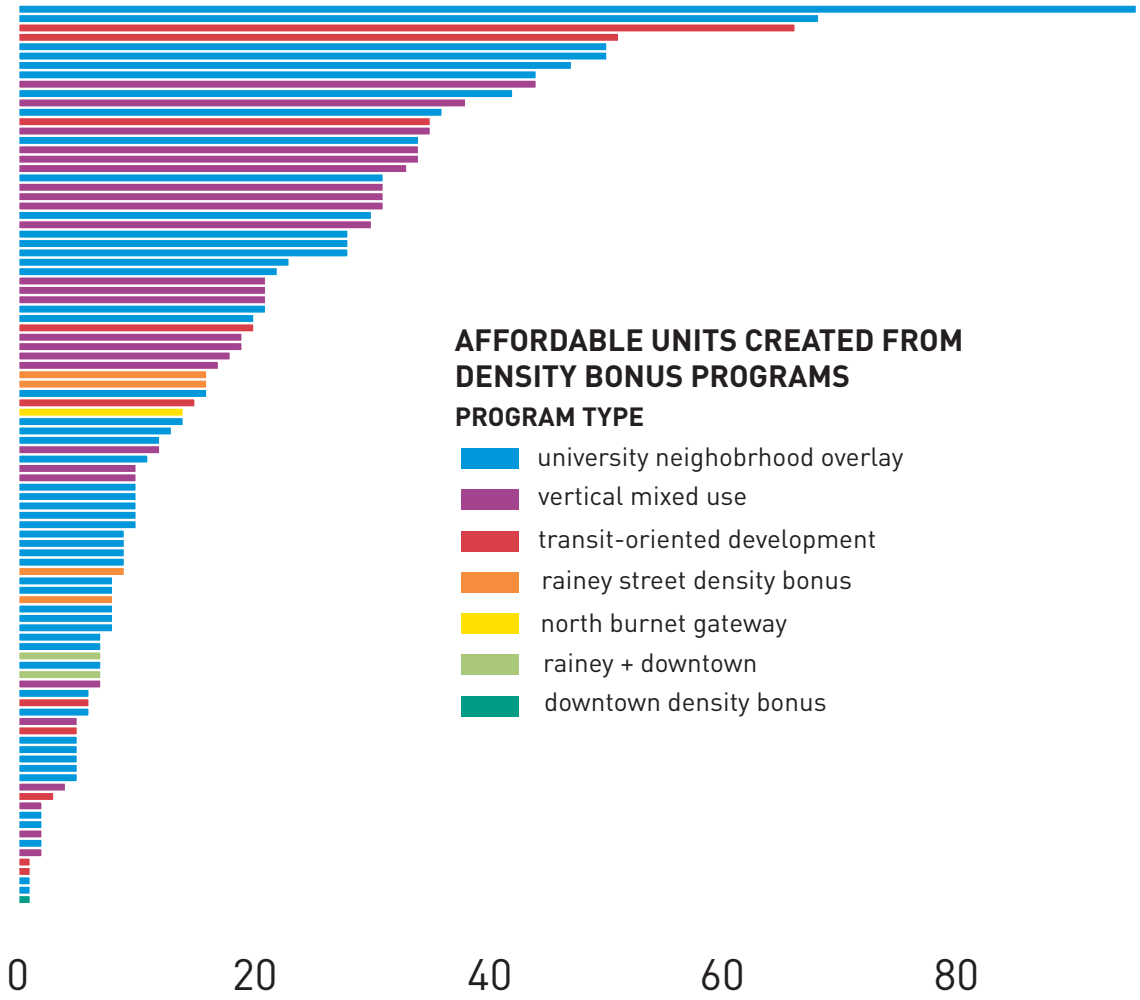


Table 16: Developments Using Austin Density Bonus Programs (excluding UNO and SMART housing)

Project	Address	Units	Affordable Units	Status	Bonus
1615 East 7th Street	1615 E 7th St.	19	5	Building Permit Issued / Project Underway	TOD
3110 S Congress	3114 S Congress Ave.	20	2	Project Certified / Loan Executed	VMU
47 Rainey Street	47 Rainey St.	320	16	Affordability Period Expired	R
48 East Ave	48 East Ave.	240	7	Project Certified / Loan Executed	RNY+DDB
5453 Burnet Road	5453 Burnet Rd.	103	10	Project Complete / Final C.of O. Received	VMU
607 W St. Johns Ave.	607 W St Johns Ave.	10	1	Building Permit Issued / Project Underway	TOD
6444 Burnet Road	6444 Burnet Rd.	38	4	Building Permit Issued / Project Underway	VMU
6500 Burnet Apartments	6500 Burnet Rd.	52	5	Project Certified / Loan Executed	VMU
70 Rainey Street	70 Rainey St.	167	8	Building Permit Issued / Project Underway	RNY
7EAST	2025 E 7th St.	177	18	Project Complete / Final C.of O. Received	VMU
900 South 1st Condos	900 S 1st St.	69	7	Project Certified / Loan Executed	VMU
901 East 6th	901 E 6th St.	0	0	Project Certified / Loan Executed	TOD
Alexan East 6th Street	2400 E 6th St.	208	21	Building Permit Issued / Project Underway	VMU
Amli - South Shore	1620 E Riverside Dr.	375	19	Project Complete / Final C.of O. Received	VMU
Antique Market	5350 Burnet Rd.	174	17	Project Complete / Final C.of O. Received	VMU
Arnold 2	1614 E 6th St.	115	20	Project Certified / Loan Executed	TOD
Aspen Heights	805 Nueces St.	196	0	Project Complete / Final C.of O. Received	DDB
Burnet Marketplace	6701 Burnet Rd.	343	34	Project Complete / Final C.of O. Received	VMU
Camden Lamar Heights	5400 N Lamar Blvd.	314	31	Project Complete / Final C.of O. Received	VMU
Cielo - Plaza Saltillo	310 Comal St.	17	1	Application Received / Under Review	TOD
Cielo South Lamar	2717 S Lamar Blvd.	327	33	Project Complete / Final C.of O. Received	VMU
Corazon	1000 E 5th St.	332	35	Project Complete / Final C.of O. Received	TOD
East 12th Street Lofts	2724 E 12th St.	30	6	Project Certified / Loan Executed	TOD
East Avenue Apartments	16 N IH 35	223	7	Project Certified / Loan Executed	RNY+DDB
Eastside Station	1700 E 4th St.	332	51	Building Permit Issued / Project Underway	TOD
Eastside Village	1621 E 6th St.	346	66	Building Permit Issued / Project Underway	TOD
FLORA Apartments	5406 Middle Fiskville Rd.	194	19	Application Received / Under Review	VMU
Gaston Tract	2501 W Braker Ln.	423	14	Project Certified / Loan Executed	NBG
Gibson Flats	1219 S Lamar Blvd.	95	10	Project Complete / Final C.of O. Received	VMU
Hanover South Lamar	809 S Lamar Blvd.	116	12	Project Complete / Final C.of O. Received	VMU
Highland Mall	5901 Airport Blvd.	309	31	Site Plan Approved / Project Underway	VMU
Lamar at North Loop	5210 N Lamar Blvd.	209	21	Project Certified / Loan Executed	VMU
Lamar Flats	3607 S Lamar Blvd.	308	31	Building Permit Issued / Project Underway	VMU
Legacy at The Lake	43 Rainey St.	187	9	Affordability Period Expired	RNY
Mark Hart Architecture	1212 E 7th St.	0	0	Application Received / Under Review	TOD
Millenium	91 Rainey St.	326	16	Project Complete / Final C.of O. Received	RNY
Plaza Saltillo		0	0	Application Received / Under Review	TOD
Post South Lamar	1500 S Lamar Blvd.	298	30	Project Complete / Final C.of O. Received	VMU
Post South Lamar 2	1414 S Lamar Blvd.	350	35	Building Permit Issued / Project Underway	VMU
Seville	1401 E 4th St.	27	3	Project Complete / Final C.of O. Received	TOD
South Lamar Boulevard	3101 S Lamar Blvd.	378	38	Project Complete / Final C.of O. Received	VMU
South Lamar Plaza	1100 S Lamar Blvd.	441	44	Project Complete / Final C.of O. Received	VMU
Studio East	1630 E 6th St.	139	15	Building Permit Issued / Project Underway	TOD
The Guild	2804 S 1st St.	15	2	Project Certified / Loan Executed	VMU
The Tree	3715 S 1st St.	336	34	Project Complete / Final C.of O. Received	VMU
Uptown Lofts	5117 N Lamar Blvd.	23	2	Project Complete / Final C.of O. Received	VMU
West Koenig Flats	5608 Ave. F	210	21	Project Complete / Final C.of O. Received	VMU

Figure 20: Brentwood-Crestview Street Network

Figure 21: Brentwood-Crestview in Context of Austin

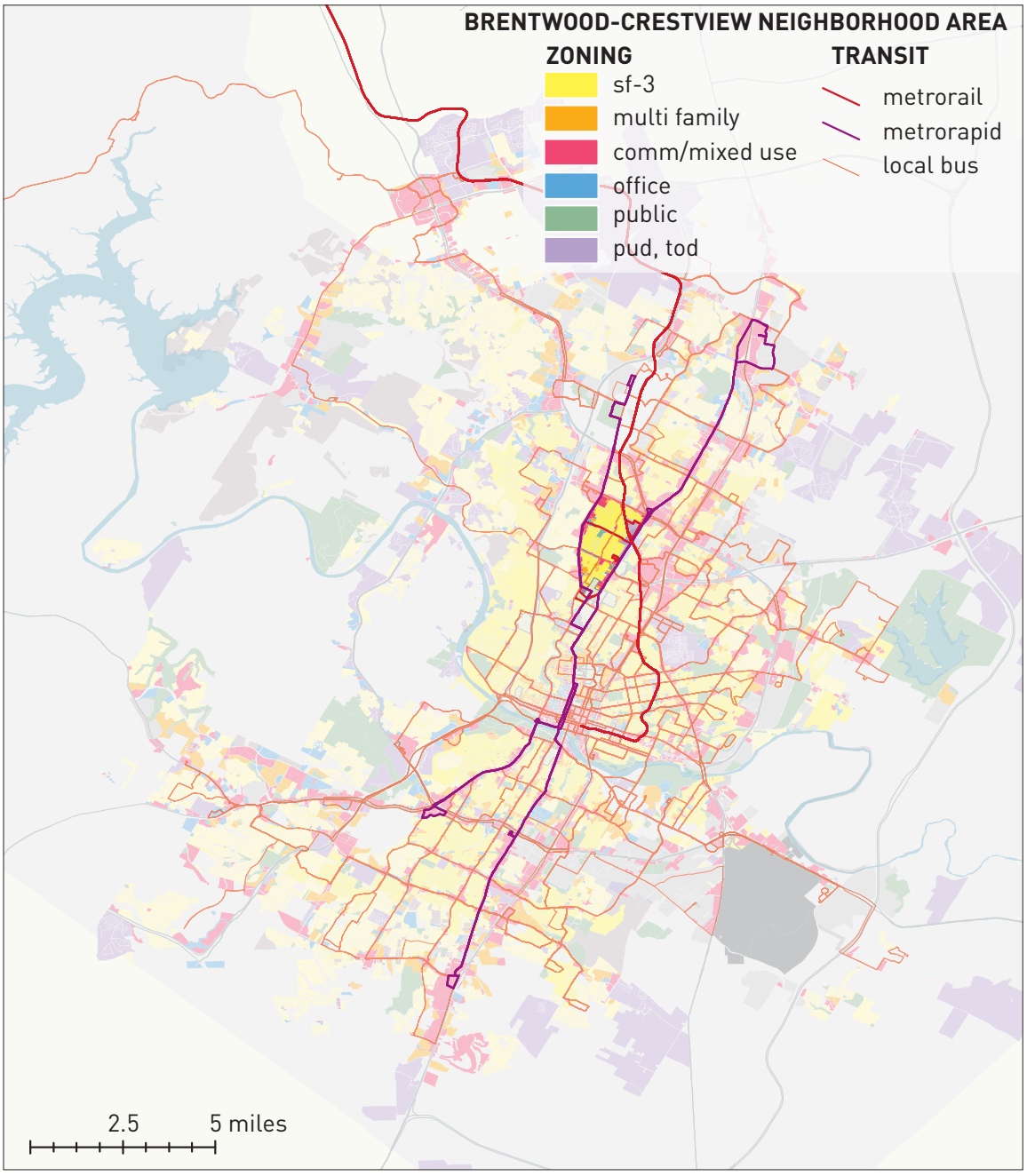


Figure 22: Simplified Current Zoning of Brentwood-Crestview Area

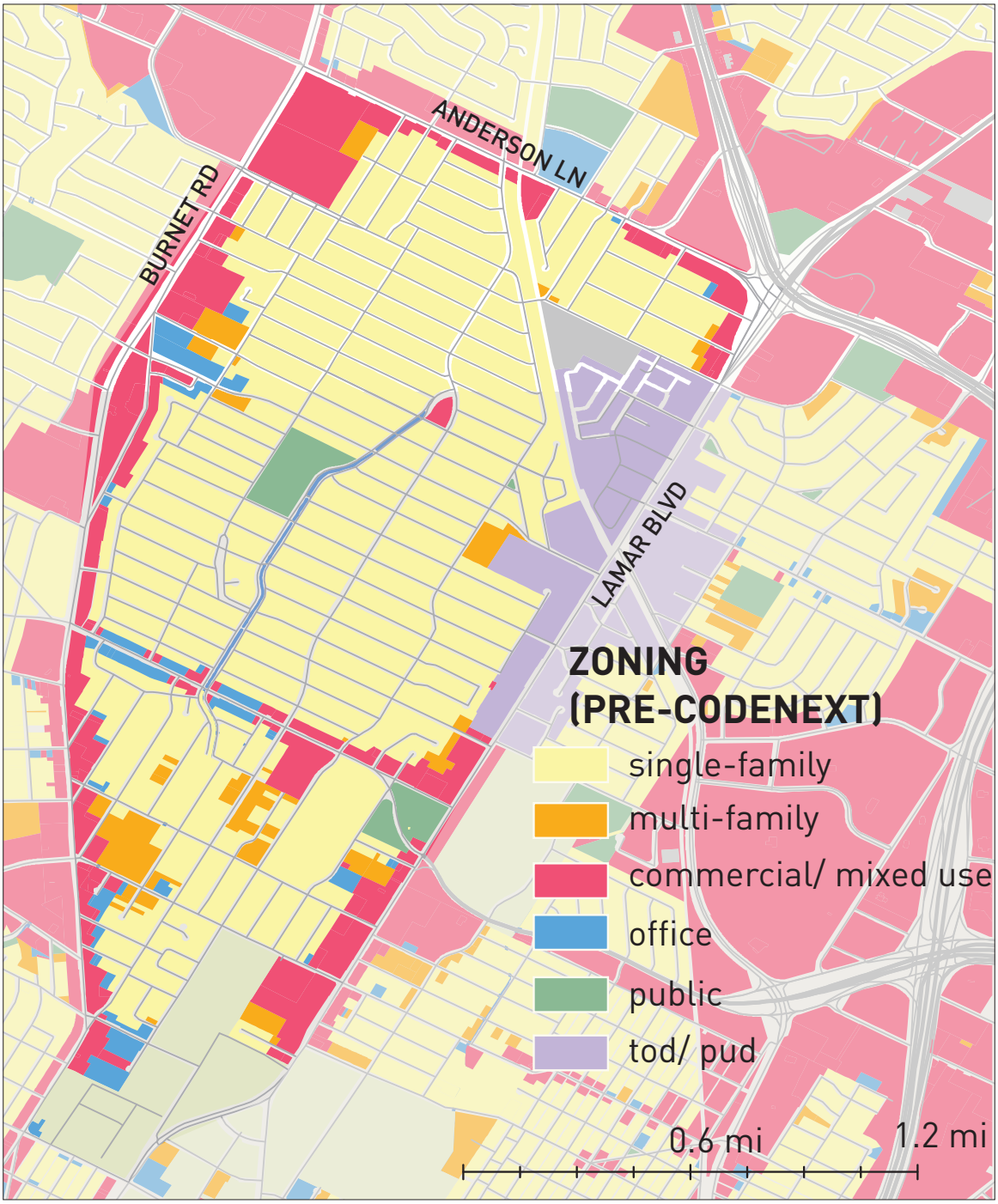


Figure 23: Typical Development Pattern of Brentwood and Crestview

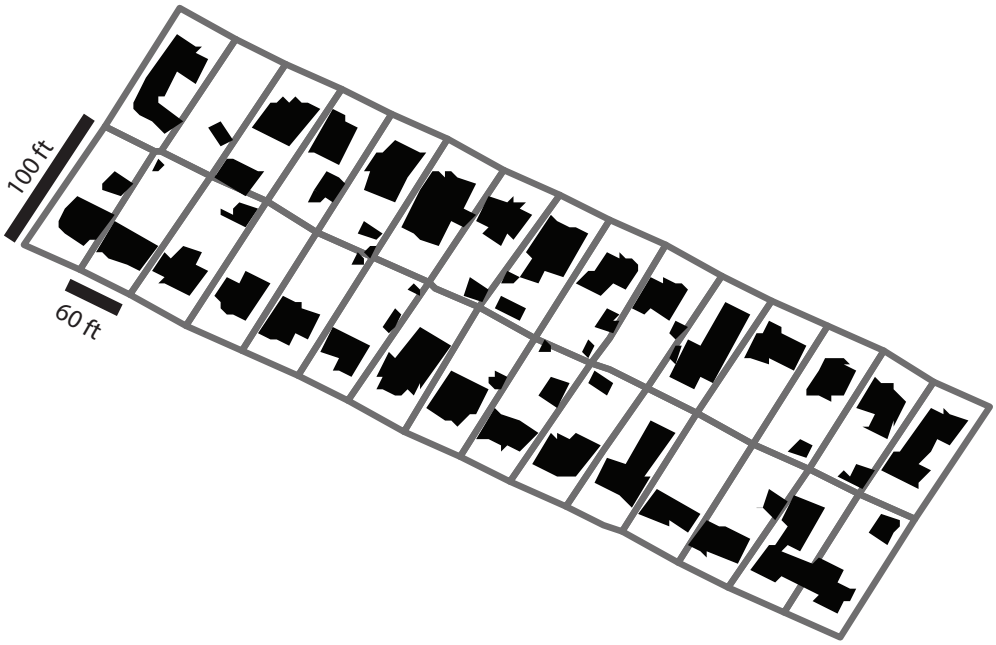


Table 17: Public High Schools (excluding charter & magnet schools) in Austin Metropolitan Area Recieving "A" Grades by Niche.com

School	Address	NicheGrade	School District
Westlake	4100 Westbank Dr, Austin, TX 78746	A+	Eanes ISD
Westwood	12400 Mellow Meadow Dr	A+	Round Rock ISD
Lake Travis	3324 Ranch Rd 620 S, Austin TX 78738	A+	Lake Travis ISD
Vandegrift	9500 Mcneil Dr, Austin TX 78750	A+	Leander ISD
Cedar Park	2150 Cypress Creek Rd, Cedar Park, TX 78613	A+	Leander ISD
Dripping Springs	940 W Hwy 290, Dripping Springs, TX 78620	A	Dripping Springs ISD
McNeil	5720 Mcneil Dr, Austin, TX 78729	A	Round Rock ISD
Anderson	8403 Mesa Dr, Austin, TX 78759	A	Austin ISD
Vista Ridge	200 S Vista Rdg, Cedar Park, TX 78613	A	Leander ISD
Georgetown	2211 N Austin Ave, Georgetown, TX 78626	A	Georgetown ISD
East View	4490 E University Ave, Georgetown, TX 78626	A	Georgetown ISD
Bowie	4103 W Slaughter Ln, Austin, TX 78749	A	Austin ISD
Leander	3301 S Bagdad Rd, Leander, TX 78641	A	Leander ISD
Rouse	1222 Raider Way, Leander, TX 78641	A	Leander ISD
Round Rock	201 Deepwood Dr, Round Rock, TX 78681	A	Round Rock ISD
Cedar Ridge	2801 Gattis School Rd, Round Rock, TX 78664	A-	Round Rock ISD
McCallum	5600 Sunshine Dr, Austin, TX 78756	A-	Austin ISD
Hendrickson	2905 Fm 685, Pflugerville, TX 78660	A-	Pflugerville ISD
Austin	1715 W Cesar Chavez, Austin, TX 78703	A-	Austin ISD
Wimberley	100 Carney Ln, Wimberley, TX 78676	A-	Wimberley ISD
Liberty Hill	16500 W State Hwy 29, Liberty Hill, TX 78642	A-	Liberty Hill ISD

Table 18: Brentwood/ Crestview Compared to Austin

Indicator	AUSTIN	2.05	15.04	15.05	BC Total
Age: <17	21.6%	13.1%	14.6%	11.7%	13.1%
Age: 18 to 34	33.9%	39.1%	33.0%	30.2%	34.0%
Age: 35 to 64	37.0%	39.4%	42.7%	49.3%	43.8%
Age: 65<	7.6%	8.4%	9.9%	8.8%	9.2%
White	48.7%	72.2%	76.7%	79.5%	76.2%
Black/ African American Alone	7.4%	3.1%	0.6%	1.0%	1.5%
American Indian/ Alaska Native Alone	0.2%	0.3%	0.4%	0.0%	0.3%
Asian Alone	6.7%	10.4%	5.5%	1.9%	5.9%
Native Hawaiian/ Pacific Islander Alone	0.1%	1.6%	0.0%	0.0%	0.5%
Some Other Race Alone	0.2%	0.0%	0.0%	0.9%	0.3%
Two or More Races	2.4%	1.9%	1.2%	3.1%	2.0%
Hispanic or Latino	34.5%	10.5%	15.6%	13.5%	13.4%
Households with 1+ People Under 18	27.9%	14.7%	22.5%	14.6%	17.3%
Households with No People Under 18	72.1%	85.3%	77.5%	85.4%	82.7%
Less than High School	12.5%	5.5%	2.9%	5.6%	4.5%
High School Graduate	16.6%	14.5%	17.4%	8.8%	13.8%
Some College	24.0%	11.9%	21.9%	22.2%	19.0%
Bachelor's Degree	29.7%	35.6%	36.5%	40.9%	37.6%
Advanced Degree (Master's, Doctorate, Professional)	17.2%	32.5%	21.4%	22.6%	25.2%
Owner-Occupied/ Occ. HU	44.8%	36.0%	61.6%	50.4%	49.6%
Renter-Occupied/ Occ. HU	55.2%	64.0%	38.4%	49.6%	50.4%
Vacant/ Housing Units	7.7%	4.3%	11.6%	0.6%	5.8%
Vacant-For Rent	36.4%	0.0%	11.8%	0.0%	8.6%
Vacant-For Sale	7.7%	49.0%	38.1%	0.0%	39.3%
1, Detached	46.8%	38.4%	69.0%	63.2%	57.5%
1, Attached	4.4%	5.7%	3.7%	6.4%	5.2%
2	4.1%	4.0%	3.3%	8.5%	5.2%
3 or 4	4.0%	3.5%	0.0%	1.3%	1.5%
5 to 9	6.1%	6.6%	0.0%	2.9%	3.0%
10 to 19	12.1%	24.3%	6.1%	9.6%	13.0%
20 to 49	9.4%	10.5%	2.7%	2.5%	5.1%
50 or More	11.6%	7.0%	15.3%	5.7%	9.6%
Median Year Structure Built	1986	1971	1958	1956	1941
Median Value (Owner Units)	$240,800	$332,100	$290,800	$309,700	$303,855
Median Gross Rent	$1,047	$898	$1,291	$981	$1,039

How to read Table 18

•“AUSTIN” column is City of Austin

• Census Tract 2.05 is southern half of Brentwood with northern boundary of Koenig Lane

• Census Tract 15.04 is Crestview

• Census Tract 15.05 is northern half of Brentwood with southern boundary of Koenig Lane

•”BC Total” is those three census tracts considered together

• Education indicators is taken as percentage of population 25 years or older

• “Owner-occupied” and “renter-occupied” indicators are taken as percentage of occupied housing units

• “Vacant” is taken as percentage of all housing units

• “Vacant-For Rent” and “Vacant-For Sale” indicators taken as percentage of vacant units

• “Housing Units in building indicators taken as percentage of all housing units (and “mobile/ manufactured,”“other” categories omitted

Figure 24: Brentwood-Crestview Access to Bus Rapid Transit, Light Rail

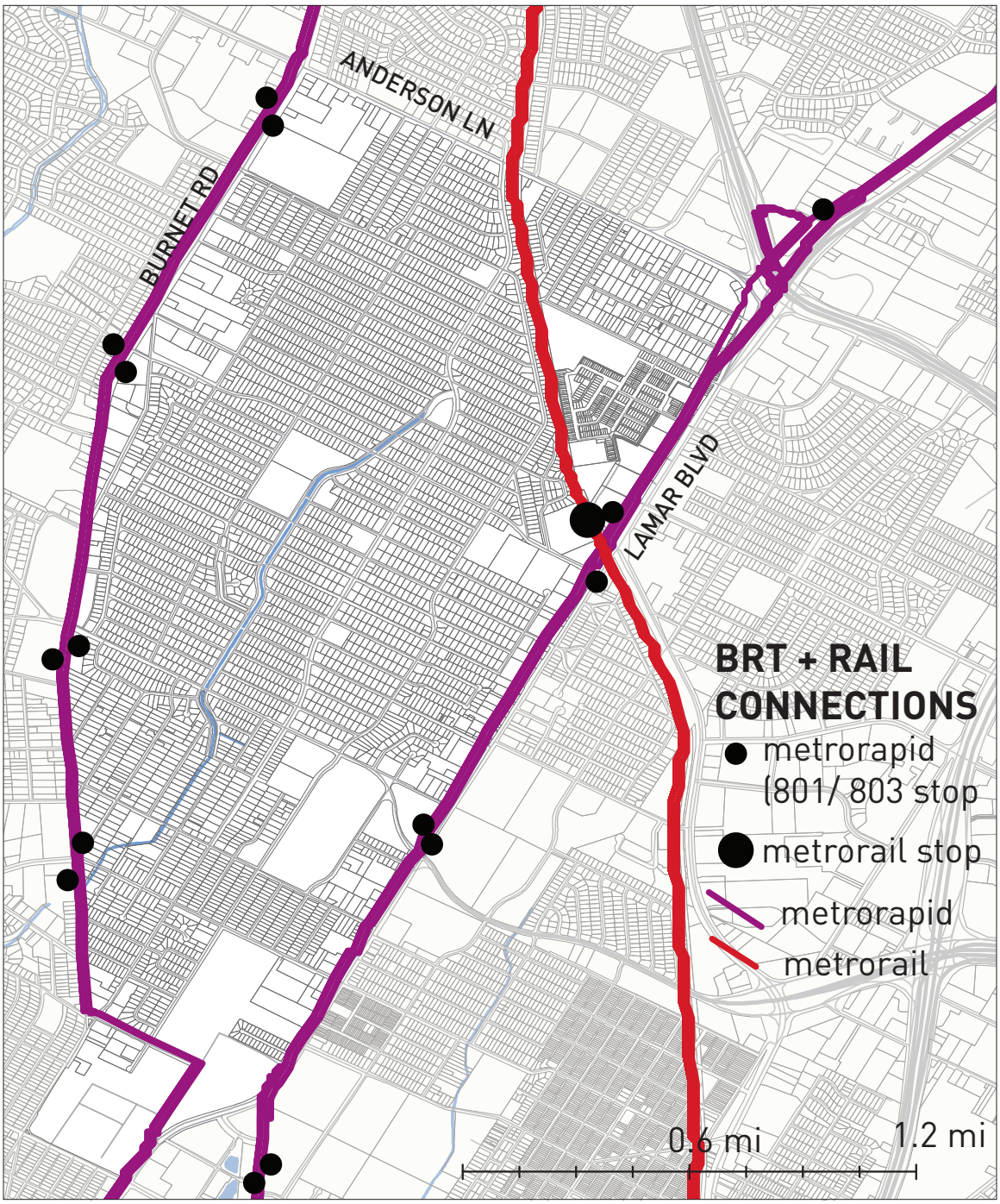


Figure 25: Demolition and New Build Analyisis- Amount of Constructed Units on Lots Replacing Demolished Homes

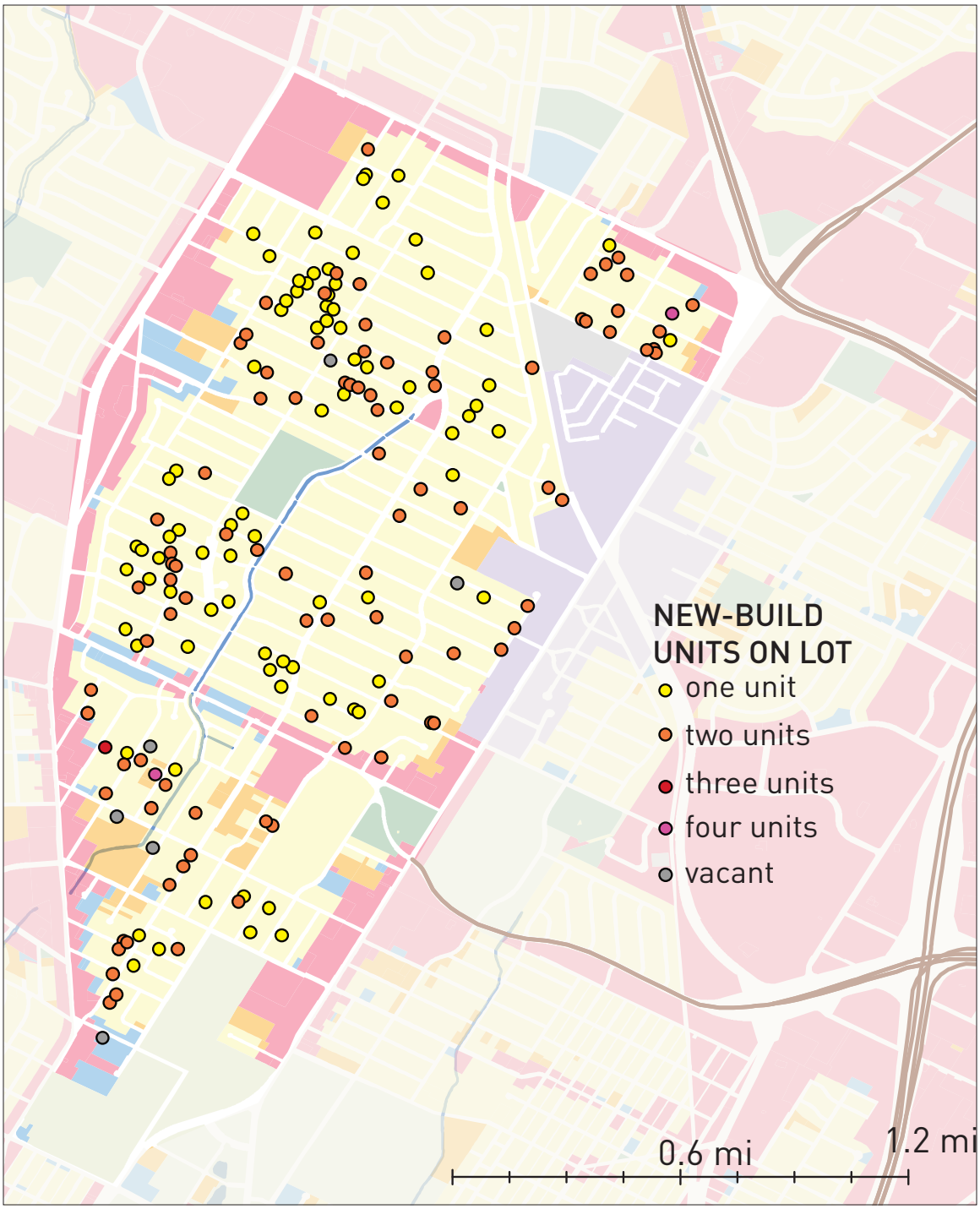


Figure 26: Demolition and New Build Analysis- Square Footage of New Single-Family Units Replacing Demolished Homes

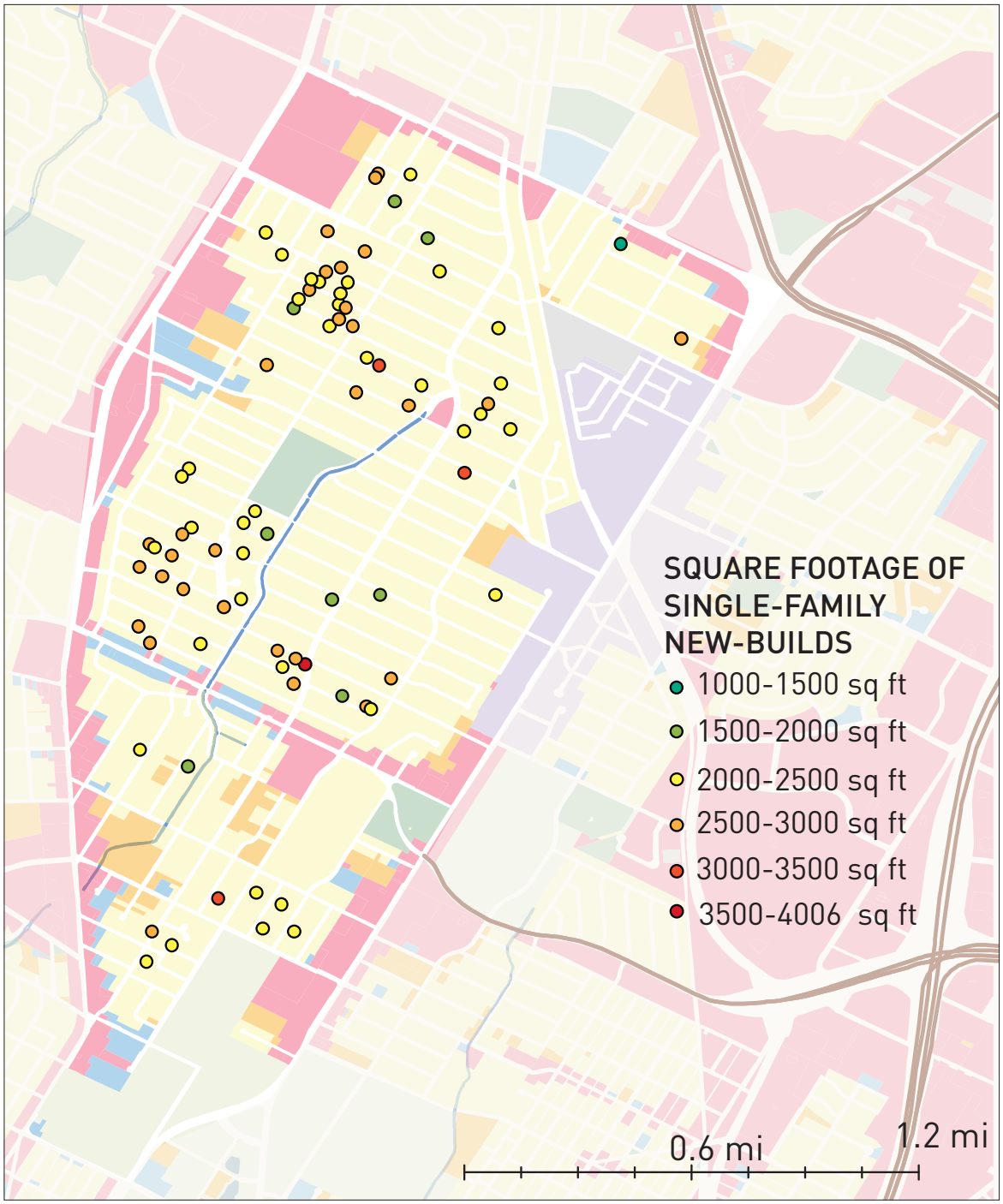


Figure 27: Demolition and New Build Analysis- Average Square Footage of New Units on Two-Unit, Three-Unit, and Four-Unit Lots

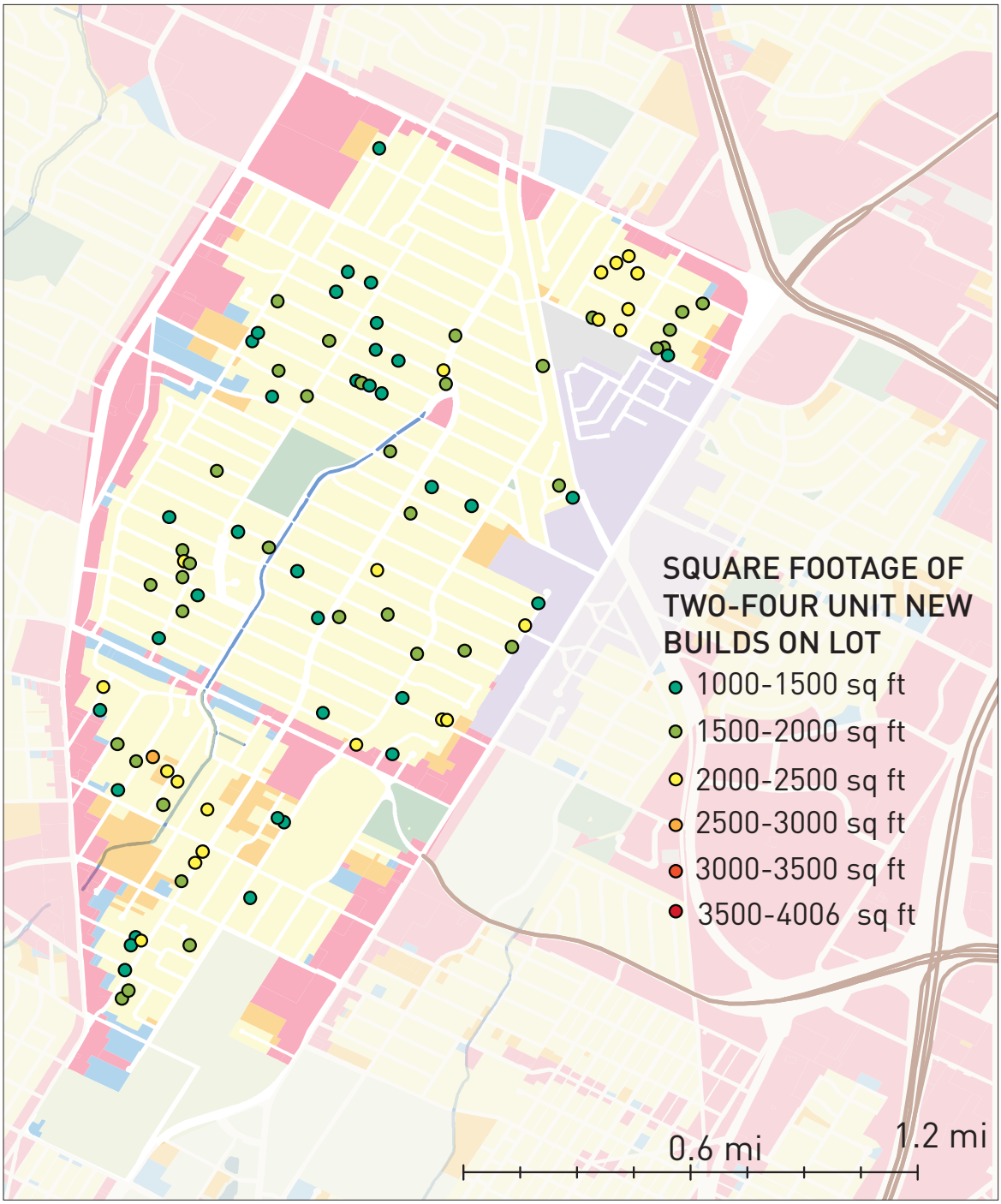


Table 19: New Single-Family Homes Replacing Demolished Single-Family Homes

ADDRESS	YEAR	OLDSQFT	NEWSQFT
5607 JIM HOGG AVE	2008	946	1824
2003 PEQUENO ST	2009	778	2100
2008 BRENTWOOD ST	2009	1107	2183
913 TAULBEE LN	2009	961	2592
1314 W ST JOHNS AVE	2010	944	2116
2007 RICHCREEK RD	2010	1376	2215
7705 MULLEN DR	2010	1606	1932
1901 ALEGRIA RD	2010	800	2597
1403 PAYNE AVE	2010	1544	1713.5
1710 PIEDMONT AVE	2011	1040	2084
1908 PASADENA DR	2011	1008	2135
1914 PAYNE AVE	2011	958	2151
7805 GAULT ST	2011	672	1304
1005 RUTH AVE	2011	1100	2023
5606 JEFF DAVIS AVE	2011	unknown	2042
5405 GROVER AVE	2011	884	2408
5307 AURORA DR	2011	624	2325
1302 ALGUNO RD	2011	997	1847
5405 AURORA DR	2011	780	2191
1911 MADISON AVE	2012	720	1880
1303 AGGIE LN	2012	966	2061
1813 PASADENA DR	2012	780	2294
1704 KAREN AVE	2012	1240	1856
1715 DARTMOUTH AVE	2012	1119	1662
1302 NORTH ST	2012	906	2316
1814 PASADENA DR	2012	1100	2231
1709 ALGUNO RD	2012	1032	2001
1714 KAREN AVE	2012	1300	2407
1705 MORROW ST	2012	1668	2487
1305 KAREN AVE	2012	1069	1869
5206 WOODROW AVE	2013	820	2940
1710 PAYNE AVE	2013	unknown	2353
5109 WOODROW AVE	2014	1278	2216
1410 ALGUNO RD	2014	1125	2324
5313 SUNSHINE DR	2014	1150	2288
1906 CULLEN AVE	2014	900	2735
1205 ALEGRIA RD	2014	1400	2742
1709 ALEGRIA RD	2014	975	2631
1307 MADISON AVE	2014	900	2575
1808 MADISON AVE	2014	7200	2565
1206 ALGUNO RD	2014	1250	2605
7514 HARDY DR	2014	900	2713
1812 AGGIE LN	2014	1350	2700
1911 PEQUENO ST	2014	1349	2739
1809 PASADENA DR	2014	1000	2875
1508 PIEDMONT AVE	2014	1000	2396
1413 ROMERIA DR	2014	1520	2848
1901 PAYNE AVE	2014	720	2668
1910 MADISON AVE	2014	720	2417
1405 ALGUNO RD	2014	1000	2610
1204 ALGUNO RD	2014	1385	2394
1212 PIEDMONT AVE	2015	850	2122
7801 MULLEN DR	2015	1460	2422
1904 RICHCREEK RD	2015	750	2658
1909 PASADENA DR	2015	944	2510
1815 RICHCREEK RD	2015	850	2484
1919 PAYNE AVE	2015	750	2635
1910 PALO DURO RD	2015	2950	2727
1303 CULLEN AVE	2015	1200	3105
1405 ROMERIA DR	2015	1108	2716
1215 PASADENA DR	2015	1161	2462
5311 ROOSEVELT AVE	2015	unknown	3218
1506 W ST JOHNS AVE	2015	1050	2592
1704 PIEDMONT AVE	2015	685	3032
1912 PASADENA DR	2015	1100	2210
2005 PEQUENO ST	2016	736	2874
1704 GOODNIGHT LN	2016	800	2240
1800 MADISON AVE	2016	700	2671
1903 PALO DURO RD	2016	536	2588
7709 HARDY DR	2016	1112	2676
1911 RICHCREEK RD	2016	772	2751
7707 HARDY DR	2016	1100	2541
1811 MADISON AVE	2016	1050	2456
1911 ALEGRIA RD	2016	550	2795
1401 ROMERIA DR	2016	1150	4006
1310 PIEDMONT AVE	2016	807	2387
2005 ALEGRIA RD	2016	1006	2666
7500 ST LOUIS ST	2016	958	2332
1707 W ST JOHNS AVE	2016	1250	2997
1711 CULLEN AVE	2017	856	unknown

Table 20: New Single-Family Homes Replacing Two Units

ADDRESS	YEAR	OLDSQFT	NEWSQFT
1717 BRENTWOOD ST	2012	1369	2178
2009 BRENTWOOD ST	2013	913	2416

***"year" refers to when demolition permit was issued**

Table 21: New Two Units Replacing Single-Family Homes

ADDRESS	YEAR	OLDSQFT	NEWSQFT	UNIT SF AVE	SF UNIT1	SF UNIT2
1903 PEQUENO ST	2006	unknown	3532	1766	1814	1718
1501 MADISON AVE	2006	unknown	3036	1518	1518	1518
1002 MORROW ST	2007	unknown	3968	1984	1984	1984
1905 PEQUENO ST	2007	980	4006	2003	1772	2234
5905 GROVER AVE	2007	unknown	4131	2065.5	2073	2058
1902 ALEGRIA RD	2007	unknown	3231	1615.5	1415	1816
1113 STOBAUGH ST	2008	1086	4186	2093	1797	2389
900 BRENTWOOD ST	2008	1572	4350	2175	2190	2160
1414 JUSTIN LN	2009	unknown	3431	1715.5	1758	1673
5308 WOODROW AVE	2010	1498	3902	1951	1951	1951
1000 MORROW ST	2010	1037	3082	1541	*	
5513 JOE SAYERS AVE	2011	1818	4684	2342	*	
5706 ADAMS AVE	2012	772	4196.5	2098.25	2051	2145.5
5601 JIM HOGG AVE	2012	752	4702	2351	2351	2351
1202 MORROW ST	2012	720	3832	1916	*	
1200 ARCADIA AVE	2012	930	3232	1616	1616	1616
1403 W 51ST ST	2012	722	3000	1500	1500	1500
1300 PAYNE AVE	2013	1452	3878	1939	1939	1939
1404 NORTH ST	2013	1500	4035	2017.5	2002	2033
4911 WOODROW AVE	2013	638	3474	1737	1737	1737
5605 JEFF DAVIS AVE	2013	unknown	5085	2542.5	*	
1917 W ST JOHNS AVE	2013	1800	2429	1214.5	1578	851
7009 ST JOHNS CIR	2013	unknown	2828.5	1414.25	1988.5	840
5605 ROOSEVELT AVE	2013	unknown	2886	1443	*	
6506 ARROYO SECO	2013	unknown	3028	1514	*	
1307 BRENTWOOD ST	2013	1980	4715	2357.5	2357	2358
1715 PASADENA DR	2014	1278	2903	1451.5	2070	833
7806 HARDY DR	2014	1278	2753	1376.5	1875	878
1527 MADISON AVE	2014	1278	2693	1346.5	1854	839
1207 JUSTIN LN	2014	unknown	2786	1393	1878	908
1206 STOBAUGH ST	2014	1050	4478	2239	2239	2239
1318 ARCADIA AVE	2014	1300	3232	1616	1616	1616
1709 MADISON AVE	2014	1150	2951	1475.5	2104	847
1506 PAYNE AVE	2014	896	2875	1437.5	2025	850
1807 ALEGRIA RD	2014	723	2880.5	1440.25	1969.5	911
5909 AURORA DR	2014	1278	2731	1365.5	1890	841
7014 ST JOHNS CIR	2014	1656	3202	1601	2112	1090
914 MORROW ST	2014	1160	2616	1308	1752	864
5408 WOODROW AVE	2014	1216	4335	2167.5	2198	2137
1003 TAULBEE LN	2014	1020	3836	1918	1918	1918
1908 PEQUENO ST	2014	834	3196	1598	1598	1598
1200 MORROW ST	2014	740	4436	2218	2218	2218
1501 RICHCREEK RD	2014	2000	3605	1802.5	1799	1806
1918 W ST. JOHNS AVE	2014	unknown	2022	1011	*	
1809 ROMERIA DR	2014	unknown	3780	1890	1887	1893
1211 STOBAUGH ST	2015	1010	4924	2462	*	

Table 22: New Two Units Replacing Single-Family Homes (continued)

ADDRESS	YEAR	OLDSQFT	NEWSQFT	UNIT SF AVE	SF UNIT1	SF UNIT2
1702 W ST JOHNS AVE	2015	848	2817	1408.5	1948.5	868
7413 GROVER AVE	2015	1104	3638	1819	1806	1832
915 STOBAUGH ST	2015	700	3492	1746	*	
1310 CHOQUETTE DR	2015	1080	3065	1532.5	1533	1532
7707 GAULT ST	2015	unknown	4609	2304.5	*	
1912 ROMERIA DR	2015	1456	3918	1959	1959	1959
2004 PAYNE AVE	2015	unknown	2872	1436	1875	997
1900 RICHCREEK RD	2015	945	2887	1443.5	1481	1406
1804 RICHCREEK RD	2015	839	2814	1407	1417	1397
1806 PIEDMONT AVE	2015	1278	3194	1597	1737	852
5604 GROVER AVE	2015	720	2684	1342	*	
1900 CULLEN AVE	2015	1416	3453	1726.5	2276.5	938
1311 JUSTIN LN	2015	unknown	2946	1473	*	
1104 MORROW ST	2015	1296	4585	2292.5	2386	441
900 RUTH AVE Bldg B	2015	950	2852	1426	1468	1384
1900 PALO DURO RD	2015	1280	2738	1369	1783	955
5401 GROVER AVE	2015	unknown	2764	1382	*	
1304 PALO DURO RD	2015	1278	2751.5	1375.75	1917.5	834
1406 NORTH ST	2015	772	2764	1382	1925	839
1407 NORTH ST	2015	unknown	2946	1473	1284	1662
5505 JIM HOGG AVE	2015	792	3174	1587	2346	828
1812 JUSTIN LN	2015	1278	2781.5	1390.75	1941.5	840
1006 PAYNE AVE	2015	unknown	3250	1625	1773	1477
1500 MADISON AVE	2016	1800	4176	2088	*	
1520 W ST JOHNS AVE	2016	1254	2661	1330.5	1808	853
5402 WOODROW AVE	2016	890	4488	2244	*	
1403 ARCADIA AVE	2016	912	2974	1487	1893	1081
1708 W ST JOHNS AVE	2016	1174	2941	1470.5	2024	917
1813 BURBANK ST	2016	1062	3416	1708	2005	1411
1801 CULLEN AVE	2016	1000	3581	1790.5	*	
1816 PASADENA DR	2016	734	2721	1360.5	1845	876
1303 HARRIET CT	2016	960	3814	1907	*	
1107 TAULBEE LN	2016	1125	4579	2289.5	*	
1919 MADISON AVE	2016	884	3697	1848.5	1772	1925
900 KAREN AVE	2016	1960	3758	1879	1889	1869
1706 W ST JOHNS AVE	2016	1297	3094	1547	*	
5600 JEFF DAVIS AVE	2016	1232	3478	1739	*	
1511 W ST JOHNS AVE	2017	1000	unknown			

Table 23: New Two Units Replacing Two Units

ADDRESS	YEAR	OLDSQFT	NEWSQFT	UNIT SF AVE	SF UNIT1	SF UNIT2
912 ROMERIA DR	2007	1232	4511	2255.5	2385	2126
910 ROMERIA DR	2007	1180	4543	2271.5	2417	2126
1715 KAREN AVE	2011	1824	2748	1374	1360	1388
5001 WOODROW AVE	2011	1254	3720	1860	1860	1860
6201 GROVER AVE	2011	1280	2864	1432	*	
5504 JEFF DAVIS AVE	2012	2568	2994.5	1497.25	1498.5	1496
5619 ADAMS AVE	2014	866	2389	1194.5	1461	928

Table 24: New Three and Four Units Replacing Single-Family Homes

ADDRESS	YEAR	OLD SQ FT	UNITS	NEW SQ FT	UNIT SF AVE	SF UNIT1	SF UNIT2	SF UNIT3	SF UNIT4
5602 JIM HOGG AVE	2010	unknown	4	8680	2170	2158	2174	2174	2174
5503 CLAY AVE	2012	871	3	4951	1650	2020	1374	1557	
1000 TAULBEE LN	2014	unknown	4	7108	1777	1778	1778	1776	1776

Table 25: Demolished Homes Where Lots are Vacant

ADDRESS	YEAR	OLDSQFT
1719 PIEDMONT AVE	2013	1900
5611 JEFF DAVIS AVE	2014	unknown
1105 RUTH AVE	2015	unknown
5404 JOE SAYERS AVE	2015	1119
1307 W 49TH ST	2015	1100
1607 HOUSTON ST	2015	1140

***For newly constructed two-units, unit square footage information was available for primary home and accessory dwelling unit combinations, as well as for two-units that are condominiums. However, in cases where a duplex has not been divided into two ownership units, the individual unit square footage is not available from the Travis County Appraisal District. These are noted by a "*" in the "SF UNIT1" column. These are more often than not side-by-side duplexes, so the "UNIT SF AVE" is an appropriate estimate.**

Table 26:Residential Demolition Permits Issued as Percentage of All SF-3 Lots

Year	Residential Demolition Permits Issued	Demolitions/ SF-3 Lots
2006	2	0.05%
2007	6	0.15%
2008	3	0.08%
2009	4	0.10%
2010	8	0.20%
2011	14	0.36%
2012	19	0.49%
2013	13	0.34%
2014	41	1.06%
2015	42	1.10%
2016	28	0.74%
2017	2	0.21%

Figure 28: Brentwood-Crestview Proposed Zoning under CodeNEXT

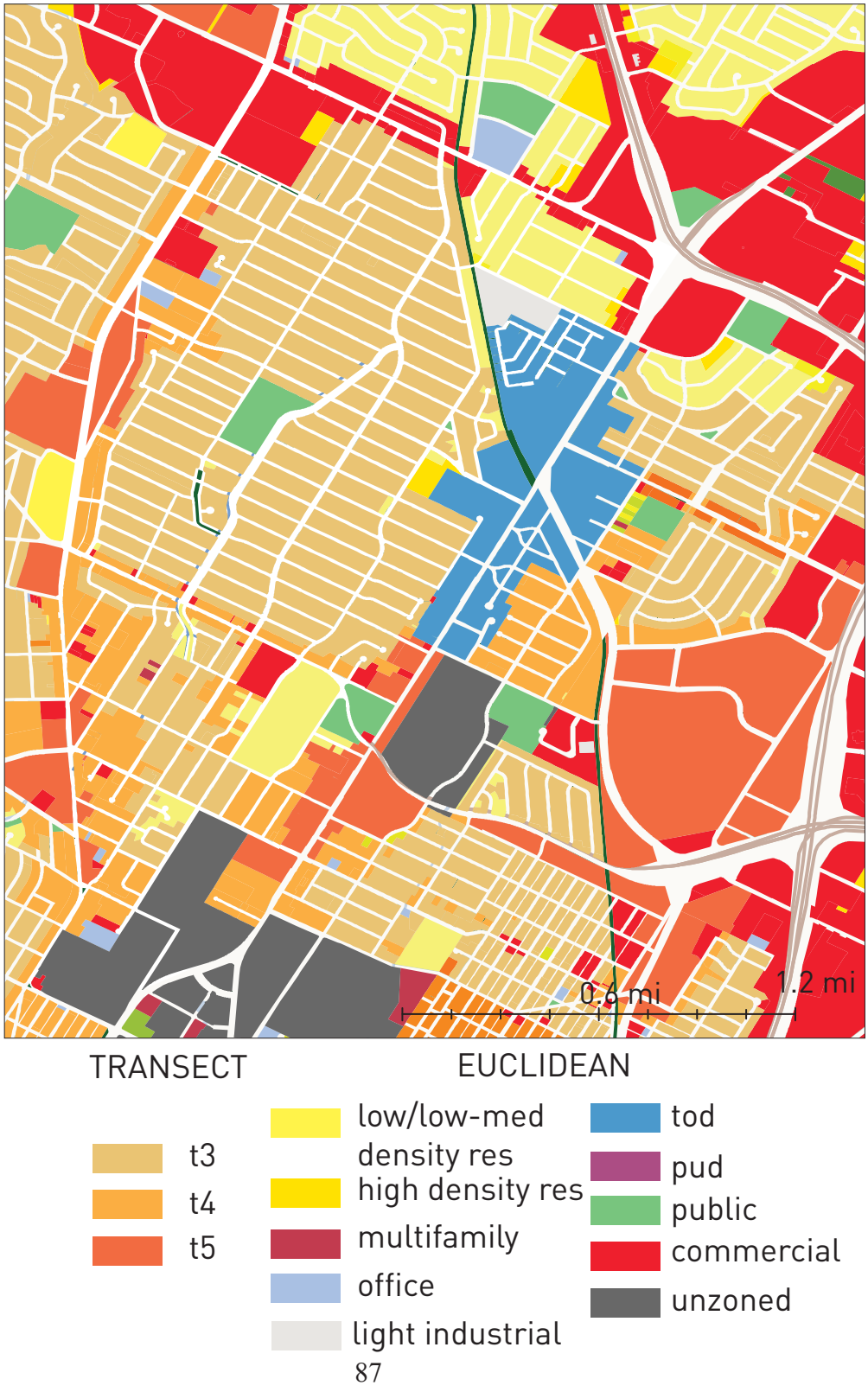


Table 27: Zoning Categories Proposed in Brentwood and Crestview

Zoning	Minimum Lot Sq Ft	Maximum Building Sq Ft	FAR	Maximum Stories
T3.N Deep Setback	5,000	4,000	80%	2
T3.N Edge	7,200	4,416	61%	2
T3.N Intermediate Setback	4,000	3,200	80%	2
T4.N Intermediate Setback	6,000	5,000	83%	2

Zoning	Building Types Allowed
T3.N Deep Setback	Small house, wide house, duplex (side-by-side), ADU, cottage corner/ court
T3.N Edge	Wide house, duplex (side-by-side), ADU
T3.N Intermediate Setback	Cottage house, small house, duplex (stacked), duplex (side-by-side), cottage corner, cottage court, ADU
T4.N Intermediate Setback	Cottage, house, small house, duplex (stacked), wide house, duplex (side-by-side), multiplex (medium), cottage court, ADU

Figure 29: Proposed Areas Zoned "T3" under CodeNEXT

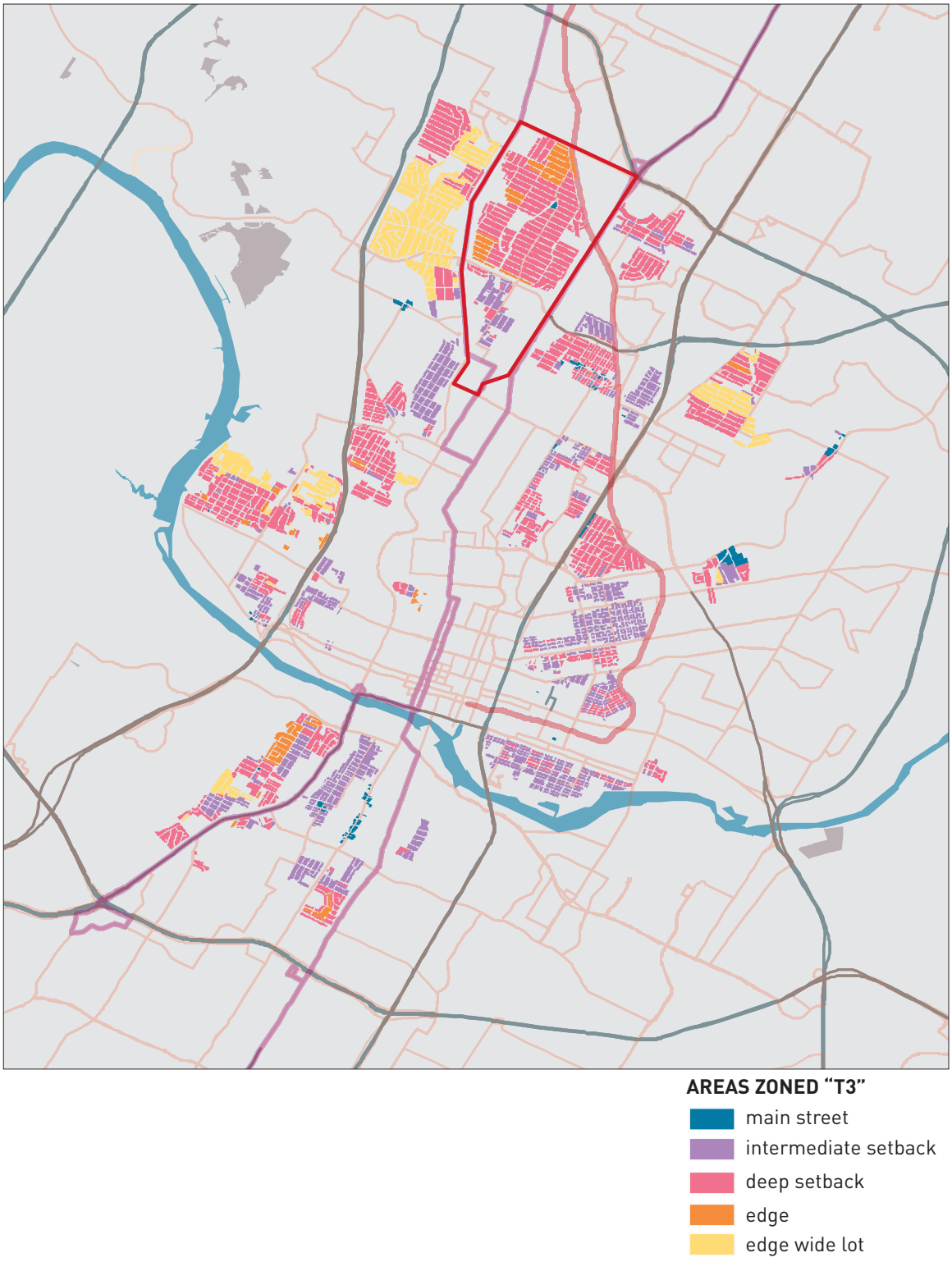


Figure 30: Areas where Density Bonuses are Proposesd to be Available

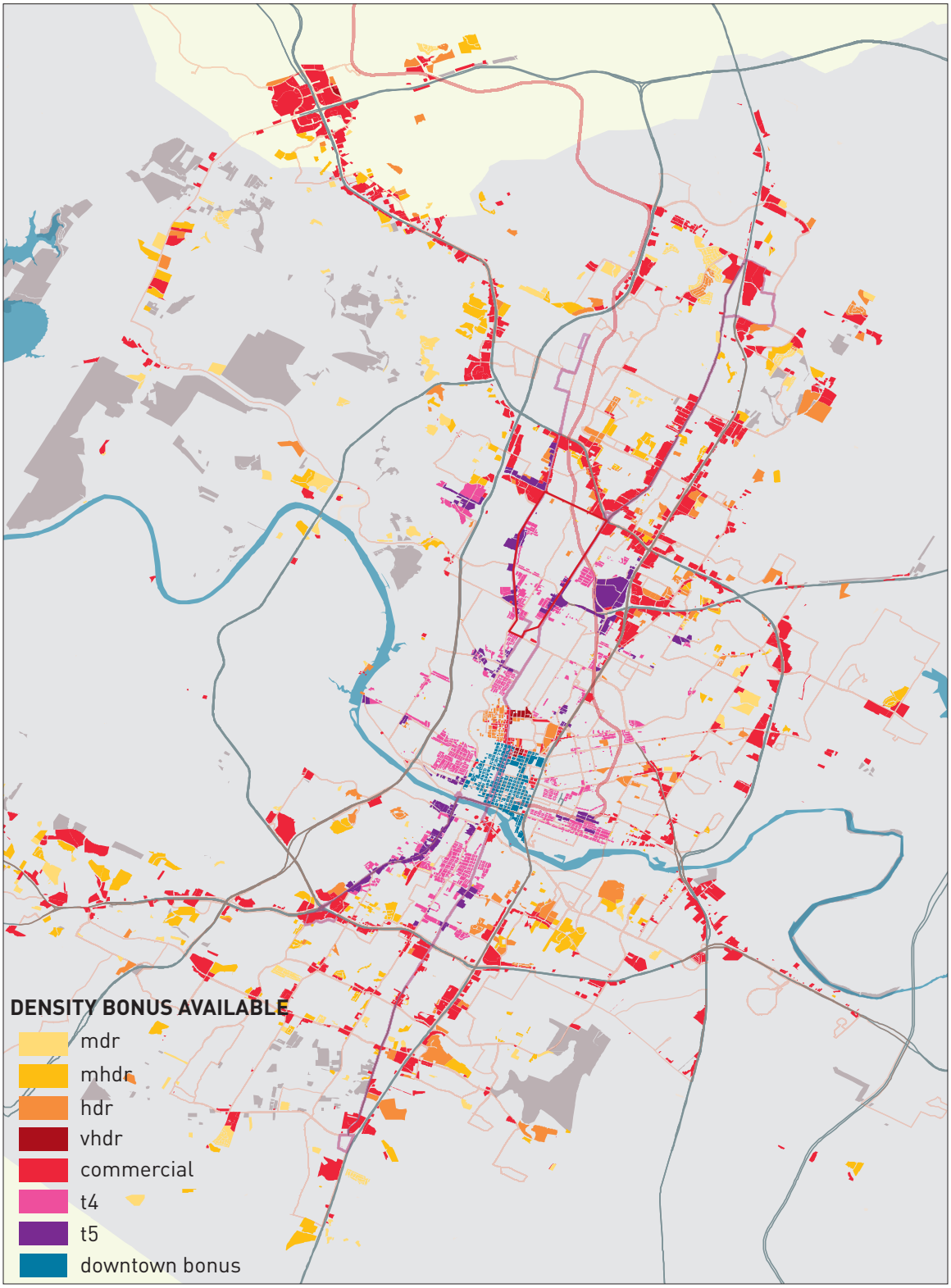


Table 28: Fourplex on a T3N.IS lot (top) and T3N.DS lot (bottom)

	Intermediate Setback
Purchase Price*	$210,000
Lot Size (sq ft)	4,000
Demolition/ Relocation Cost	$ 15,000.00
Total Square Footage	$ 3,200.00
Additional Tap work, Capital Recovery Fees	$ 64,000.00
$/ Sq Ft to Build	$ 150.00
Construction Loan	$ 480,000.00
Holding Costs, Property Taxes (estimate)	$ 29,145.00
Sales Price of 80% MFI unit (1 total)	$ 250,000.00
Sales Price of Market Units (3 total)	$ 340,000.00
Total Sales	$ 1,270,000.00
Realtor and Closing Fees	$ 50,800.00
Profit	$ 421,055.00
Return	61%
*Purchase price assumed to be $420,000 for 8,000 sq ft lot	

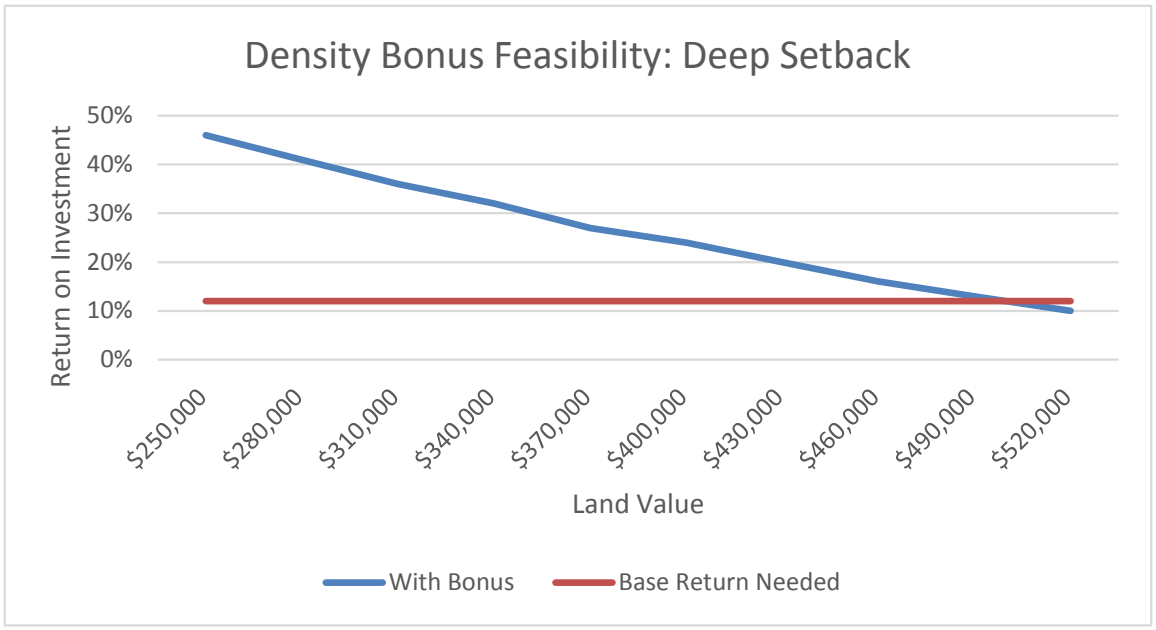
	Deep Setback
Purchase Price*	$250,000
Lot Size (sq ft)	5,000
Demolition/ Relocation Cost	$ 15,000
Total Square Footage	$ 4,000
Additional Tap Work, Capital Recovery Fees	$ 64,000
$/ Sq Ft to Build	$ 150
Construction Loan	$ 600,000
Holding Costs, Property Taxes (estimate)	$ 36,125
Sales Price of 80% MFI unit (1 total)	$ 250,000
Sales Price of Market Units (3 total)	$ 386,750
Total Sales	$ 1,410,250
Realtor and Closing Fees	$ 56,410
Profit	$ 388,715
Return	46%
*Purchase price assumed to be $500,000 for 10,000 sq ft lot	

Table 29: Sixplex on a T3N.E lot (top) and a T3NE.WL lot (bottom)

	Edge
Purchase Price	$436,000
Lot Size (sq ft)	7,200
Demolition/ Relocation Cost	$ 15,000
Total Square Footage	5000
Unit Square Footage	875 (market), 750 (affordable)
Additional Tap Work, Capital Recovery Fees	$ 90,000
$/ Sq Ft to Build	$ 150
Construction Loan	$ 750,000
Holding Costs, Property Taxes (estimate)	$48,182
Sales Price of 60%MFI Unit (1)	$ 180,000
Sales Price of 80% MFI Unit (1)	$ 250,000
Sales Price of Market-Rate Units (4)	$ 352,170
Total Sales	$ 1,838,680
Realtor and Closing Fees	$ 73,547
Profit	$425,951
Return	36%

	Edge Wide Lot
Purchase Price	$388,000
Lot Size (sq ft)	8,400
Demolition/ Relocation Cost	$ 15,000
Total Square Footage	6,244
Unit Square Footage	1,040
Additional Tap Work, Capital Recovery Fees	$ 90,000
$/ Sq Ft to Build	$ 150
Construction Loan	$ 936,600
Holding Costs, Property Taxes (estimate)	$56,336
Sales Price of 60%MFI Unit (1)	$ 180,000
Sales Price of 80% MFI Unit (1)	$ 250,000
Sales Price of Market-Rate Units (4)	$ 409,500
Total Sales	$ 2,068,000
Realtor and Closing Fees	$ 82,720
Profit	$499,344
Return	38%

Figure 31: Land Value and Projected Return on Investment for T3.NDS Redevelopment



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